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TIME OF HOLDING THE UNIVERSITY EXAMINATIONS.

It will be in the recollection of our readers that, in reviewing the Director's Report on the Presidency College, we drew attention to the Principal's suggestion that the University Examinations be held at the end of the first term, and we promised to return to the subject, contenting ourselves at the time with a qualified approval of the change. We now propose to examine more minutely the arguments for and against the proposal.

The chief argument against holding the University Examinations in April is that, at that time of the year, the heat is so great that the strain involved in a consecutive six days' ordeal is more than the ordinary individual can stand, and the candidates are placed at a distinct disadvantage both in preparing for the examinations and in answering their papers under such trying conditions as at that time prevail. Undoubtedly, there is some truth in this objection, but we think it is greatly exaggerated. The Medical College Examinations are held in July, the Agricultural College students are examined in April and May, and the Government Technical Examinations are held in April. Of course, the atmos-

phere of the examination room is not so agreeable then as in December, but in no case has failure been attributed to atmospheric conditions, and we have not heard of any complaint on the part of the students. Practically, this is the only objection to the proposed change. The argument that it would be difficult to get examiners at this time of the year is of little weight. Examiners can always be obtained if they are likely to receive adequate remuneration.

The arguments for the change are numerous and overwhelming, as they need be if any change is to be brought about by dint of moving such a conservative body as the Senate. At present, in all first-grade colleges, there is practically little work done between the middle of November and the middle of February. The University Examinations begin in December, lectures are finished and pupils are reading privately for some time before the examination. The results are not known till the middle of February, and consequently, the Junior F.A. and the Junior B.A. classes cannot be formed, because promotion to these classes depends on the University results. Hence the three best months in the year both for teachers and students are wasted. Those months when it is more than agreeable to lecture or to read are spent for the most part by the Professor in examining University papers which could be quite as well done in the vicinity of Coonoor or of Ootacamund during the summer vacation, and by the pupil in anxiously awaiting the verdict which is to decide whether he obtains promotion or is to be entitled to the dubious title of 'failed F.A.' or 'failed B.A.' Surely, it would be better for our colleges that this were altered. If the proposed changes are made, from the middle of July to the middle of April would be a period of uninterrupted lectures and study, the recreation and change necessary for such a long strain being provided for by the ordinary Michaelmas and Christmas holidays. The breaks in the continuity of lectures and study caused by the summer vacation would be avoided, and the academical year's work would be completed in a suitable manner by the University Examinations, after which would come the much-needed rest of the summer vacation. The results would all be published by the middle of July. All the classes would then be formed and the college work would go on uninterruptedly for another nine months. An objection to this is sometimes made. The teachers would get three months leave, and this to some

people seems altogether unnecessary and unreasonable. But it is not so. At Cambridge and at Oxford, there is no work done between June and October, and such long vacations too are usual in France and in Germany. The correction of the University papers must be done by the Professor, because in India, circumstances are such that the teachers are the best men, if not the only men, capable and available for such important and responsible work. The vacation would be spent by the Professor in examining papers and doing deliberately and well that which is at present done hurriedly. If it were not that in India a certain number of Professors are servants of Government, this objection would certainly not arise; it has no existence at Oxford or Cambridge.

By the fact of the summer months being a period of vacation, both teachers and students would be recruiting themselves for the coming year at the very time when the climate is most exhausting. Consequently, they would come at the beginning of the academical year thoroughly fit and eager to enter on their duties and carry on successfully and uninterruptedly the year's work. At present, the first term, beginning in February and ending in April, lasts but twelve weeks, scarcely sufficient time for the teacher to become acquainted with his pupils, and certainly not sufficient time for him to have gone through the bulk of his work. The students go away for nine weeks. On returning, it is a case of beginning again; the slight impression made in the first term has worn off, and the vacation which should be a period of rest and recruiting, becomes of necessity a period of activity and enervation. That these arguments will not be considered conclusive by the majority of the Senate is evident from the bitter opposition the proposal received when it was originally brought forward by the late Mr. Grigg. We believe that the subject was not discussed at that time on its merits. Mr. Grigg had been bringing forward so many proposals involving radical changes that latterly the fact of his being the proposer of a modification, however mild and inoffensive, was certain to ensure opposition strong and immediate. At this distance of time, the warmth which unfortunately characterised the debates on this proposal must have cooled and we think that, if the proposal were now brought forward in a temperate and well-considered manner, it would certainly commend itself to a large minority if not to an actual majority of the Senate.

THE LATE MISS MARY IVE.

In the year 1892, the Committee of the Bishop Corrie's School in Black Town found itself in a position to proceed to the appointment of a Head Mistress to the Girls' School which it was about to open. Friends in England were communicated with, and the result afforded some indication of the way the labour-market in the paths of higher education is over-stocked already, for numerous applications from ladies of very high attainments and qualifications were received. The choice of the Committee finally fell upon Miss Ive. This lady was born in 1862, and in 1879 when only in her eighteenth year, began her career as a teacher at Seam House, Kensington. In 1881, she passed the Higher Local Examination of the Cambridge University. In 1884, she obtained an appointment on the Teaching Staff of St. Boniface Diocesan School, at Ventuor, in the Isle of Wight. In 1887, she passed the first examination, and in 1890 the second examination for Women of the Oxford University, taking Honours in Natural Science on the latter occasion. In the same year (1890), she accepted an engagement at Woodford House, Croydon, and in February 1893, she arrived to take up her appointment in Madras.

The Bishop Corrie's Girls' School was only then being started, so that the new Head Mistress had to contend with the special difficulties inseparable from inaugurating all the arrangements of the new enterprise. She was efficiently supported and assisted by the Rev. J. W. Foley, the esteemed Head Master of the old Corrie's Boys' School, and by the Rev. E. Sell, the Secretary of the Committee, but still she was confronted with very arduous duties at the outset, her discharge of which speedily won for her the esteem and regard of all who had the opportunity of observing it. The necessity for opening the school had been so imperative, that it started in debt, towards the reduction of which Miss Ive immediately began to labour with characteristic energy and cheerfulness. In 1894, the girls under her training performed a charming little play, the scene of which was laid in ancient Greece; the production of the Head Mistress' own facile pen, and a sum of over Rs. 300 was realised. Few more graceful entertainments have ever been witnessed in Madras, the costumes and the training of the fair young performers

bearing eloquent testimony to the skill and painstaking of the talented author-manager.

In 1895, Miss Ive organised a Fancy Sale (for which the pupils of the school made most of the articles) and thus realised a further sum of nearly Rs. 1,100.

This year another spectacular entertainment entitled 'Fairy-land,' was being actively prepared under the same clever and wise guidance, and was to have been given in the last Michaelmas holidays, when the over-worked fragile frame gave way and the illness overcame her which has terminated so fatally.

Apart from the general duties of supervision as Head Mistress, Miss Ive shone especially perhaps in imparting her knowledge in Mathematics and Science. "She was never so happy," writes one of those whose privilege it was to work with her, "as when teaching a class to solve difficult 'riders' in Euclid, or when showing experiments in Chemistry or Physics." As a small proof of her success, it may be mentioned that at the recent preliminary test examinations for Matriculation held in September last by five Madras Schools, *viz.*, Bishop Corrie's Boys' and Girls', the Doveton Boys' and Girls', and the Madras Collegiate School, one of Miss Ive's pupils gained the highest percentage of marks in Euclid.

Miss Ive had a good churchwoman's strong affection for, and an intimate knowledge of Holy Scripture. She herself taught the classes for the Elementary and the Lower Grade Prayer Book Examinations with the happiest results. This year, out of twelve candidates sent in for the Elementary Prayer Book Examination, nine obtained money prizes.

Energetic, earnest, and thorough herself, Miss Ive never could bear work done so slowly or so carelessly as to manifest a want of real interest in it. As a proof of her inculcation of thoughtful study, it may be mentioned that she insisted upon the practice of mental arithmetic throughout the school. She had a wholesome dread at the same time of both over-study and of 'cram'. If a girl could not get through the work she had to do at home in a certain judicious allowance of time, she would have to lose her marks for it, but it was made a strict rule that she was not to *sit too long* over it.

Miss Ive always advocated plenty of healthy and enlivening exercise, declaring strongly against the brain being developed at the

expense of the whole frame. On this account, she was careful to see that her colleagues should not give the girls too many lessons to be done at home, for fear they should be deprived of a fair share of time for exercise and play.

Like other teachers in Anglo-India, Miss Ive was troubled by the tendency of pupils and of pupils' parents to be careless about regular attendance. Her tactful plan was to award a prize in each class to the girl who attended most regularly during the year, and this took the form of a picture of the girl herself hung in a nice frame in the class-room.

Many of our readers will have known Miss Ive outside her own special school work. She belonged to the local Teachers' Guild and to the Association of Women Teachers. Before a meeting of the former, she read a paper upon "How to teach Arithmetic"; and before a meeting of the latter, a paper upon "Science Teaching in Girls' Schools." She was also a member of the Madras School of Music.

As to the personality of the lady who has been taken from us, this is perhaps not an appropriate place for much to be said. In her work and in her life in Madras, and in her holiday visits to some of our hill stations, the late Miss Ive, in the short time she was in India, won many friends, whose regret at the loss they have suffered by her death, is only tempered by the knowledge that she had right loyally earned, and very greatly needed the peace and rest into the enjoyment of which she has now entered. Thirty-four years is a short space of life, but when half of them are spent in such good work for her generation as was achieved by our late friend, it may safely be said that she contributed her full quota to the benefit and advancement of educational effort in her mother-country and in this land of her exile.

TEACHERS' COLLEGE, SAIDAPET.

Since the Principal of the Teachers' college is the editor of this Journal, a review of the college report cannot be inserted by him. The Director's remarks on the working of the college and the various Institutions under the control of the Principal during 1895-96 are printed in full.

The above report is full and interesting and the administration of the college and its branches is creditable to the Principal and the staff.

TEACHERS' COLLEGE.

2. *Staff.*—The changes in the staff during the year were too many, but unavoidable. The Director notes with pleasure the Principal's testimony to the hearty co-operation that existed among the members of the staff and the consequent efficiency of the working of the college. The distribution of work given in paragraph 2 of the report might have been better exhibited in a tabular form, as was done in connection with the last report.

3. *Accommodation.*—Mr. Hall complains again of the inadequacy of the accommodation. The arrangements made for accommodating five classes of the practising school are noted, and the estimates for extra buildings, which the Principal has called for, will be awaited. Sanction has since been accorded for the construction of stables; and the work has already been completed.

4. *Library.*—The library continued to be well used both by the teachers and the students. The Director notes with approval the arrangements made by the Principal to meet the cost of printing a new catalogue.

5. *Strength and attendance*—(i) *Training section.*—The strength of this section showed a further decline, there being only 64 students as against 70 on the 31st March 1895; but both the average number on the rolls and the average attendance had improved, being 66 and 63 as against 64 and 60, respectively, in the previous year. The number of graduate teachers rose to 33, though none of them were Masters of Arts. Brahmans continued to preponderate, while the number of non-brahman hindus was still disproportionately small. It is very gratifying to note that one Muhammadan graduate has gained admission, and that another who applied very late this year, is expected to seek admission next year. Almost every district supplied graduate students, the largest number being from Tanjore.

(ii.) *Practising section.*—There were 331 pupils on the rolls as against 321 in the year previous. The average attendance had improved, and the tone and discipline reflect credit on the staff. The fall in the strength of the upper secondary department

was rather disappointing and was perhaps due to the results of the Matriculation Examination. The appointment of a Hindustani munshi for this section must be deferred till March next, no provision having been made for it in the current year's budget.

6. *Examinations*—(i) *Training section.*—The results of the L.T. degree examination, both theoretical and practical, showed a still further improvement, those of the practical test being doubtless due to more efficient supervision and increased practice. Considering the high opinion the Principal had of the graduates of last year as a whole, it seems a pity that none passed in the first-class at the L.T. degree examination. For the written tests for teachers' certificates held in November last, 23 F.A. under-graduates appeared, but the results were disastrous, only two having passed, one as trained and the other untrained. The Principal attributes these results to the unusual severity of the examiner in method, and recommends that, as in the Universitiy examinations, every paper set by the examiners for teachers' certificates should be subjected to the criticism and approval of the whole Board. This suggestion is commended to the consideration of the Board if such an arrangement does not already exist. The results of the written test for the upper secondary grade were an improvement on those of the previous year, five having passed as trained and nine as untrained out of 18 that appeared, as against one out of an equal number sent up in 1894; those of the practical test were, on the whole, satisfactory.

(ii) *Practising section.*—At the Matriculation Examination, six pupils passed out of 18 sent up, but at the Lower Secondary examination, there was little improvement. The arrangements made by the Principal to secure better results are noted. The results of the annual examinations of the practising classes show either a want of uniformity in the standards of these examinations in the lower and upper secondary forms, or a failure to exercise due care in the admissions made last year to these forms.

7. *Special subjects of instruction.*—The students continued to receive instruction in Agriculture and Drawing. The results of the final examination in Agriculture were very satisfactory; but the Director cannot endorse the Principal's remark that the results of the standard examination in Drawing compared favourably with

those of last year, the percentage passed being only 50 as against 57. Mr. Hall's statement that Drawing is taught in all the forms of the practising section and his reference to the great interest taken by the students in the subject of Agriculture are noted.

8. *Physical Training.*—This subject continued to receive due attention, and the Director is glad to note the further testimony borne by the Principal to the ability and zeal of the gymnastic instructor. The general appearance of the students attending drill classes has, the Director trusts, greatly improved under the changes introduced by Mr. Hall. The financial condition of the recreation club was again satisfactory, the balance on hand on the 31st March last being Rs. 71, as against Rs. 39 on the corresponding date in 1895.

9. *Finance.*— Particulars as to the receipts and charges of the institution appear in paragraph 21 of the report. Both showed an increase; but, as the increase of charges was greater, the net cost of the college rose from Rs. 38,745 to Rs. 40,509. The variations should have been briefly explained. The cost to Government per student was Rs. 613.

10. *Students' Home.*—The question of the construction of a hostel for Smartha Brahmans is still under correspondence, and the final orders of Government in the matter are awaited.

11. *General.*—No reference is made to the series of lectures in Elementary Science proposed to be delivered by Mr. Hall, nor is there anything in the report to show whether the suggestion made in the last review regarding lectures on general subjects and on the life and work of eminent teachers has been acted on: the Principal is requested to report on these two points. The growing popularity and influence of the Teachers' Association attached to the college, as well as the continued success of its working, are noted with pleasure. The appointment of an additional clerk recently sanctioned by Government will, the Director trusts, afford the necessary relief to the present clerical establishment. It is noted with satisfaction that all the students that have just passed out of the college, with the exception of four First-in-Arts under-graduates, have secured suitable employment. The attention of Mr. Logan will be invited to the Principal's remarks in paragraph 28 of the report and to paragraph 3 of the G.O., No. 789, Educational

dated 30th September 1895. The celebration of the Teachers' College Day for the second time is noted.

HINDU BRANCH TRAINING SCHOOL.

12. *Staff.*—There were several changes in the staff which are detailed in paragraph 1 of the report relating to the school.

13. *Accommodation.*—The Principal's remarks on the accommodation, sanitation and furniture of the school are noted.

14. *Strength and attendance.*—Excluding the five military students, who were admitted at the beginning of the second session of 1895, there were 58 students under training on the 31st March 1896 as against 47 on the corresponding date in 1895. Both the primary and lower secondary departments of the training section participated in the increase, which was due to the admission of 12 students in January 1896. Of the 58 students, 24 were from Madras and 34 from the Chingleput district. All the taluks of the latter district were represented, the taluk of Ponnéri, however, continuing to be poorly represented, *viz.*, by one only. The attention of the Sub-Assistant, Saidapet Range, should be drawn by the Inspector to this fact and to the remarks contained in paragraph 13 of the last review. The increase in the number of Panchama students and in that of Native Christians is noted with satisfaction, but the heavy fall in the non-brahman caste hindus is to be regretted. The strength of the practising section fell slightly from 144 to 141. Both the average number on the rolls and the average daily attendance in the training section showed a marked improvement, but the reverse was the case with the practising section.

15. *Examinations.*—The results of the written examination for teachers' certificates were very satisfactory, 55 per cent. having passed for trained teachers' certificates; but those of the primary grade were not so satisfactory, four only having passed for trained teachers' certificates, though as many as 23 out of 35 passed for untrained teachers' certificates. The results of the practical test were also not good and compared rather unfavourably with those of the previous year. As regards the practising school, the results of the fifth standard examination deteriorated, while those of the Primary Examination showed an improvement; 48 pupils were presented for the third standard examination in Drawing, of whom

32 passed, a very satisfactory result. Mr. Marsden was not very favourably impressed with the criticism lesson given in his presence.

16. *Finance.*—The net cost to Government on behalf of this branch of the college was Rs. 4,818 and the cost to Government for each student was Rs. 90.

17. *General.*—It is satisfactory to note that all the trained students that passed out of the school during the year have secured employment as teachers in the various schools in Madras and Chingleput. There was a marked improvement in the physical training of the students. The opening of a Teachers' Association in connection with the school is a step in the right direction.

MUHAMMADAN BRANCH TRAINING SCHOOL, MADRAS.

18. *Staff.*—There was no change in the staff. Mr. Hall is requested to address the Director in a separate communication regarding the raising of the standard of the school to the lower secondary grade, with full particulars as to the cost of the additional staff he considers necessary and the increased provision for stipends.

19. *Accommodation.*—An estimate for the necessary tiffin-sheds and store-rooms will be awaited.

20. *Strength and attendance.*—The strength of the training section on the 31st March 1896 was 31 as against 27 on the corresponding date of the previous year. The average number on the rolls and the average daily attendance have not been reported: according to the annual returns they were 30 and 29, respectively. The strength of the practising section, as well as its average number on the rolls and its average daily attendance, showed a slight improvement.

21. *Examinations.*—The results of the several public examinations held during the year were generally satisfactory, except those in Drawing, third and fourth standards, training section. The table appended to paragraph 4 of the report has not been carefully prepared, the necessary entries in the columns headed first and second class not having been made.

22. *Finance.*—The net cost to Government on the upkeep of this branch amounted to Rs. 3,576, and the cost to Government per student was Rs. 119.

23. *General.*—It is noted with satisfaction that the great majority of the students have obtained employment as teachers. The Principal's remarks with reference to the four students who are still unemployed and to the two who have evaded the terms of their agreement with Government are noted. There was a satisfactory improvement in the results of the examination in drill and gymnastics.

Teachers' College Gymnasium.

24. In consequence of a decrease in the amount of fees paid to examiners and in the rate of scholarships and of the limitation in the number of students that can be trained at one time, there was a large reduction in the total cost of this institution. The number of students under training on the 31st March 1896 was seven as against seventeen on the same date of the previous year. It is noted that Brahmans who formed nearly one-half the number under training in the previous year fell off considerably. The results of the certificate examination were very good, 35 students having passed altogether out of 40 that appeared, of whom as many as 19 were placed in the first-class. The results of the standard examinations in Drawing were also very fair.

Lower Secondary Training School, Madras.

25. A Lower Secondary Training school was started in Madras on the 4th March 1896 to train teachers for schools in the city, and it bids fair to become a success. It contained 23 students in the training and 110 pupils in the practising section on the 31st idem.

Panchama Training School, Madras.

26. With a view to train teachers for the Panchama schools in and out of Madras, a primary training school was started in Madras on the 2nd March 1896, and the training and practising sections were respectively 16 and 66 strong on the 31st idem. The successful working of this school is calculated to give an impetus to the development of education among the community for whom it is intended.

General.

27. Much credit is due to Mr. Hall for the prompt and well-concerted measures he adopted for opening the two new training schools in Madras, and for the hearty manner in which he co-

operated with the Director in carrying out this important scheme for improving the professional qualifications of teachers in primary schools in the Presidency town.

28. Taken as a whole and including its branches, the Teachers' College has kept up during the year its reputation as the model training institution for the whole of Southern India.

DEPARTMENTAL STORIES.

By "Riverside Dweller."

Salt for the Goose, isn't Salt for the Gander.

He seemed a very meek youth, did Mr. Snookers, as in the year of grace 1890 he climbed the office stairs to interview the Big Official with the object of soliciting that high and mighty personage to confer on him, the humble Snookers, a subordinate appointment in the Bottle and Jug Department, over which the Big Official reigned supreme. Those exceptionally steep stairs having been at length successfully negotiated, Mr. Snookers found himself seated, actually seated, in the presence of the Big Official. As he gazed at the Head of the Bottle and Jug Department, who by a scratch of a common quarter-anna pen could make or unmake hundreds of his fellow-creatures, Mr. Snookers was filled with a mighty awe. After an interval of two hours, as it appeared to the trembling Snookers—in reality it was only twenty seconds—the Big Official looked up from the file of papers he was reading and said "Well."

"I have brought a letter of introduction," timidly replied Snookers, "from Mr. Bally Rot, whom you know," and he humbly handed in the envelope. He was in hopes the Big Official would unbend, but being disappointed in this respect he proceeded:—"My father, General Snookers, has retired from the service and is now living in Bayswater. He is not able to support me any longer. I tried planting but it did not suit me. Mr. Bally Rot told me that a post of two hundred rupees was vacant in the Bottle and Jug Department and I have come with a letter from him to ask you to give me the post."

"What are your qualifications?" asked the Big Official with an air so severe that poor Snookers nearly slipped off the edge of the chair.

"I am afraid," replied Snookers, with an agonised expression, "I have not passed any examinations," and feeling that he must say something in his favour, he added with some diffidence, "I have played in the

Planters' Second Eleven and last year I won the Club Billiard Handicap."

"Why should I confer the post on *you*," retorted the BIG OFFICIAL "when for a hundred rupees a month I can get any number of graduates? Think of the amount of knowledge *they* possess."

"But it's all undigested," smartly replied Snookers.

"Of course, of course," answered the BIG OFFICIAL, "of course it is." And for the first time during the interview, the BIG OFFICIAL showed that there was something in common between him and the vulgar herd, for it is accepted as a truism that the knowledge possessed by Indian Graduates is undigested, whatever that may mean.

"I shall take your name down and shall consider your claims when the matter comes before me," said the BIG OFFICIAL, and he nodded to his visitor to go.

"I am terribly hard-up," added Snookers as he rose, "and shall be glad to accept whatever you like to give me," and he bowed himself out. Nor was he sorry to get away, for the interview had not gone off as he had expected and the BIG OFFICIAL frightened him dreadfully.

Now the BIG OFFICIAL, in spite of his severe appearance, was really a very kind-hearted man and he took pity on Snookers and gave him the post.

* * *

Let us pass over three short years and let us view Mr. Snookers of the Bottle and Jug Department as he appeared in 1893. He draws Rs. 300 a month. He is Secretary of the *Uncovenanted Grievances Association*, Treasurer of the *European Services Confederation for Intimidating the P. and O. Company*, Secretary and Treasurer of the *Increased Furlough and Pension Allowances Amalgamation*, Vice-President of the *Improved Privilege Leave Rules Union.* Off duty his get-up is immaculate. On duty he is figged out like a Field Officer; he wears a spike on his helmet, a crown on his shoulder-straps, and spurs on his boots and he dangles a formidable looking sword at his side. His appearance is military and aggressive and he was once saluted by a subaltern of a British Regiment—a recognition of his rank which he acknowledged with all the grace of a Major in the Army.

It was in this same year of grace that the rupee showed so little self-respect as to approximate to a shilling in value and many and loud were the lamentations in consequence; in fact, poor old Job has been altogether eclipsed ever since. The officers, who had been recruited in Europe when the abandoned coin afore-mentioned was worth eighteen pence or more, raised their just cry, and they were at once joined by the

rest in the hope that something would turn up. Never before was such brotherly feeling exhibited—the Covenanted lay down with the Uncovenanted, the Imperial hobnobbed with the Provincial, the superior was in the same boat as his subordinate and everyone pushed the same way. A meeting was called and never before was such an enthusiastic meeting known in the history of the Presidency. It took place in Mr. Bally Rot's house and of course Mr. Bally Rot (salary Rs. 3,000 a month; weight, 17 stone) was voted to the chair. He opened the proceedings by dwelling on the great hardships to which he had been subjected by the depreciation of the rupee and so harrowing a picture did he draw that his hearers would have concluded that he had not had enough to eat for a long time, were they not well acquainted with the largeness of both his salary and his weight.

Mr. Snookers moved the first proposition in an eloquent speech. He urged those present to unite and compel Government to give them their dues. They had been *induced* to enter Government Service when the rupee was above its present value and were not responsible for its fall. They were *entitled* to compensation from Government who, he acknowledged in justice to a party on trial, were also not responsible for the fall; and he implored all present to stand by each other without missing out a single person. (Loud cheers).

Mr. Dugald McKillicrankie seconded the motion. He was a gentleman from the north of the Tweed and throughout the whole of his service had looked after his interests with marked success. His, however, was a tale of woe but, as we are not experts at transcribing the Scotch language into English, we pretermit his remarks.

Other speeches followed, a sub-committee was elected to prepare the memorial and every one trouped in to do justice to the champagne lunch to which Mr. Bally Rot had invited the whole meeting.

* * *

On arriving to his place of residence, fresh from the champagne lunch, Mr. Snookers was met by his dressing boy (Rs. 7 a month).

"When I enter master's service," said this dusky individual, "second-sort rice ten measures a rupee: Now second-sort rice seven measures. Master please give compensation."

"Well I'm d——d," replied the virtuously indignant Snookers. "I'm not responsible for the rise in price of second-sort rice. I engaged you on Rs. 7 and that's all you will ever get from me. Confound your impudence."

THE KUMBAKONAM COLLEGE.

By N. Vaidyanathan, M.A.

I

In the August number of the *Indian Journal of Education*, some remarks appeared on the present condition of the Kumbakonam College as disclosed by the last two annual reports of that institution. The first of those remarks is that the results secured in recent years by that college at the University examinations have been generally poor, and sometimes even below the average for the Presidency; that "there must be" consequently "something radically wrong either in the teaching or in the quality of the students under instruction;" that "if the college is to remain a Government institution" the first thing necessary is the strengthening of the staff; that, in addition to the teacher of English being a European, "it would be well if the principal optional subjects were either taught or supervised by Europeans;" and lastly that the appointment of a European Vice-Principal "would greatly add to the popularity of the college."

It must be admitted that the college is not popular at present and that it has not been popular during the last few years; and it must also be admitted that the staff as it is at present constituted is to some extent responsible for this. But it is necessary to go into the statistics of the question, first, to take a correct estimate of the present condition of the institution, and secondly, to decide upon the measures that should be adopted to render it efficient and popular.

Mr. G. H. Stuart took charge of the college in supersession of Mr. T. Gopala Row, on the 14th of August, 1882. I intend to confine my attention, for the nonce, to the period of fourteen years subsequent to that event. That the college was in a flourishing condition prior to this period, and under Messrs. Porter and Gopala Row, will be proved further on; and here this fact may be assumed, especially as very few are likely to question it. When Mr. Stuart took charge of the college, its strength was 270; and the following table gives the strength of the institution in the years subsequent to 1882 indicating the name of the Principal in each year:

Year.	Strength.		Principal.	Remarks.
1883	249	...	Mr. G. H. Stuart.	
1884	209	...	do.	
1885	209	...	do.	

Year.	Strength.		Principal.	Remarks.	
1886	222	...	Mr. J. B. Bilderbeck.	Assumed charge,	25-11-85.
1887	247	...	do.		
1888	236	...	„ James Moss.	do.	15-10-87.
1889	231	...	„ J. B. Bilderbeck.	do.	7- 1-89.
1890	220	...	„ do. & Mr. J. H. Stone.	do.	23- 7-90.
1891	210	...	„ J. H. Stone.		
1892	248	...	do.		
1893	227	...	do.		
1894	197	...	„ Middlemast.	do.	17- 2-94.
1895	169	...	do.		
1896	169	...	„ J. B. Bilderbeck.	do.	7- 9-95.

In these fourteen years, the strength of the College has thus gone down from 249 in 1883 to 169 at present. This fall has been steady with the exception of two years, 1892 and 1893, during the Principalship of Mr. Stone. But these figures standing by themselves do not show the position of the College among its sister institutions affiliated to the Madras University. We should take for comparison the advance, in the same period of 14 years, of the Presidency as a whole in collegiate education; and then alone would we be in a position to estimate aright the popularity or otherwise of the college. The following tables contain the information required for such a comparison. For obvious reasons the figures for the F.A. and B.A. examinations are given separately :—

Year.	Total No. of Candidates for the F.A. for the whole Presidency.	No. of Candidates for the F.A. from the Kumbakonam College.	Percentage of the latter to the former.
1883	1,110	131	11·8
1884	1,011	77	7·6
1885	1,354	112	8·2
Figures not available for 1886		——	——
1887	1,745	126	7·2
1888	1,979	146	7·3
1889	2,013	121	6·0
1890	2,052	57	2·7
1891	2,016	76	3·7
1892	1,889	98	5·2
1893	2,273	85	3·7
1894	1,870	73	4·0
1895	1,897	65	3·4

Before taking up the figures for the degree examination, I may make a few observations on this table. On one point it is conclusive, viz., that the strength of the college, in the First in Arts class, has in

the current year gone down to less than a third, relatively speaking, of what it was in the year in which Mr. T, Gopala Row had to give up its management. But from this it is not fair to argue against the popularity of the college or the efficiency of its staff. The Government restricted some years ago the strength of each class in the college department of its institutions to a maximun of 60; and the authorities of the Kumbakonam College have generally been averse to overstepping this limit. At one time they had instituted even an admission examination of their own for the junior F.A. class, partly to restrict its strength within due limits, and partly in recognition of the unreasonably low standard of the Matriculation examination. We shall, therefore, take up the results of the First in Arts examination during the same period, and compare the figures of the Kumbakonam College with the figures for the Madras Christian College and the Presidency College, admittedly the most popular institutions in this Province. The following table gives the percentages of success in the F.A. for the Kumbakonam, Presidency, and Madras Christian Colleges, and also for the Presidency as a whole.

Year.	Kumbakonam College.	Presidency College.	Madras Xn. College.	The whole Presidency.
1883	48·1	42·6	43·5	45·1
1884	44·2	34·3	37·5	36·4
1885	37·5	36·2	28·3	33·7
Figures not available for 1886.		——	——	——
1887	27·7	36·8	34·6	29·5
1888	26·0	25·9	25·7	25·7
1889	19·0	7·1	22·5	17·8
1890	56·1	41·3	42·1	32·5
1891	25·0	42·8	47·2	36·7
1892	64·2	59·1	50·4	41·2
1893	30·5	22·5	36·3	31·4
1894	38·3	51·3	50·2	33·6
1895	47·6	44·1	35·5	33·7
Average	35·7	34·0	34·9	30·5

These figures show no marked decline in the results of the Kumbakonam College. The average of its success for the whole period is slightly above each of the other averages taken for comparison; and even in recent years, the results have not been notably against it. It appears to be maintaining its position with more or less of success; we cannot therefore possibly accuse the staff of inefficiency in so far as the First in Arts examination is concerned.

We shall now take up the figures for the B. A. degree examination and deal with them in a similar fashion. We have to divide the figures for this examination, under three different heads; first for the four years from 1883 to 1886 when the examination has to be taken as a whole, secondly, for the language part of the examination from and after 1888, and lastly, for its optional or science part for the latter period. The year 1887 has to be omitted as the figures for it are not available.

Year.	Total No. of candidates for the B.A. for the Presidency.	No. of candidates from the Kumbakonam College.	Percentage of the latter to the former
1883	221	30	13·5
1884	334	56	16·7
1885	354	33	9·3
1886	474	36	7·6
	Language Branch.		
1888	479	40	8·3
1889	568	46	8·1
1890	524	44	8·3
1891	548	35	6·4
1892	457	26	5·7
1893	658	33	5·0
1894	697	26	3·7
1895	854	57	6·6
1896	926	44	6·8
	Science Branch.		
1888	352	30	8·5
1889	446	31	7·0
1890	406	25	6·1
1891	498	16	3.2
1892	489	13	2·7
1893	594	22	3·7
1894	727	24	3·3
1895	825	46	5·0
1896	1010	46	4·5

These figures disclose a sad tale of steady fall in the strength of the college, both absolutely and relatively (to the available numbers). The college seems to have been endeavoring to lift up its head during the last two years, so far as the B.A. degree examination is concerned; but this is more than counterbalanced by the loss of strength in the lower classes, as the total strength of the College in 1895 and 1896 is the lowest in its annals. It should be borne

in mind that this decline is observable both in the Language and Science sections, though the former has men mostly presided over by the European Principal of the College, while the several Science sections have men almost exclusively in the hands of its Indian assistants. It may also be remarked that since 1890 the Science sections have shown a greater decline than the Language section, which is unquestionably the effect of the closing of the Physical Science section of the College in that year. We shall now proceed to examine whether this decline in the strength of the College has been going on *pari passu* with a decline in its results, as compared with the results of the same two Colleges as before, and with the results for the whole of the Presidency. We have here also to give the percentages of success under three different heads as before, first for the period from 1883 to 1886, secondly for the Language branch since 1888, and lastly for the Science branch since that year, 1889 being omitted for want of information. Percentages of success for the B. A. Degree Examination as a whole.—

Year.	Kumbakonam College.	Presidency College.	Madras Xn. College.	The whole. Presidency.
1883	50·0	58·4	61·4	54·3
1884	41·0	60·2	48·5	47·6
1885	6·63	50·6	49·5	47·7
1886	27·5	38·7	34·9	34·4
Average.	46·2	52·0	48·6	46·0
	For the Language Branch.			
1888	52·5	60·3	63·8	49·2
1889	50·0	56·9	52·2	55·9
1890	52·2	65·9	55·4	57·2
1891	62·8	70·5	76·3	65·5
1892	59·0	73·9	60·3	50·3
1893	81·8	83·3	83·5	77·5
1894	73·0	69·5	61·6	63·1
1895	54·4	62·0	70·1	61·2
1896	61·3	81·4	61·3	64·0
Average.	60·8	69·3	63·8	60·4
	For the Science Branch.			
1888	63·3	66·1	61·9	57·1
1889	48·4	62·5	66·6	57·1
1890	48·0	54·5	47·6	44·8

Year.	Kumbakonam College.	Presidency College.	Madras Xn. College.	The whole Presidency.
		For the Science Branch.		
1891	50·0	65·3	47·9	51·6
1892	84·6	74·6	64·2	64·6
1893	77·2	53·7	59·4	52·5
1894	8·33	60·5	66·6	54·6
1895	47·8	58·0	69·2	60·6
1896	67·4	73·7	66·2	61·8
Average	63·2	63·2	61·0	55·8

Thus the average of the results in the B.A. examination as a whole in the four years beginning with 1883 is for this college 46·2 per cent. against 52·0 and 48·6 for the Presidency College and the Christian College respectively, while for the Presidency as a whole it is 46·0 per cent. It occupies nearly the same position in the Language branch of the examination in the period of nine years since 1888, as the average for it is only 60·8 per cent. against 68·2, 63·8 and 60·4 for the Presidency and Christian Colleges, and for the whole Presidency, respectively. But in the Science branch of the B.A. degree examination, its position has generally been better, and the average of its success is not only higher than the average for the whole Presidency, but it is also higher than that for the Christian College and is exactly the same as the average for the Presidency College. If these figures justify any inference, it is this, that the efficiency of the instruction in English at the Kumbakonam College is not quite so high as the efficiency of the instruction in the Science branches, that in English it is somewhat behind the most popular institutions of the Presidency, while in Science it may be said to be even ahead of them.

It is clear from the above that the strength of the College has been falling steadily since 1883; that the B.A. classes have been affected, except in the last two years, more than the F.A. classes ; that, as regards its success at the University examinations, its position is fair in the First in Arts examination, and also in the Science branch of the B.A. degree examination, but that in the English branch of that examination its position is not quite satisfactory. The college has all this while had the advantage of smaller numbers relatively to the colleges taken for comparison with it, a circumstance from which one would naturally expect better results than those actually obtained by it. This strength taken along with the general nature of its success leads us to infer that

it does not possess sufficient attractions in the eyes of the students, but that the teachers do their best with the materials available to them. Moffussil colleges are as a body at a discount, not excepting the college of the Jesuits at Trichinopoly. This last possesses many advantages over every other institution in the Presidency and the Jesuits spare no pains to attract students to it. But they have yet to remain satisfied with the leavings of the colleges at the metropolis. The Madras Christian College is at present the centre of attraction and the Presidency College comes next. We have seen that this cannot be due to the results actually secured by those colleges, as these are not generally such as to justify such an inference. In the First in Arts examination, and in the Science branch of the higher examination, the Madras colleges are not even so successful as the Kumbakonam College, while in the Language branch of the latter their superiority is not of any very decisive character. How then is it that students yet flock to Madras and submit to the expenses and inconveniences of life in that town of gutters ? Is it due to the European staffs of the Christian and Presidency Colleges ? If so, it must be that their nationality is *per se* attractive, apart from the character of the instruction they impart, in so far as this can be estimated by the results. But I am not prepared to believe that the youths of our country attach more than a money value to their education. The names of persons like the Hon'ble Dr. Miller, Rev. Cooper, and Messrs. Stuart and Bourne cannot but command the esteem of those with any claim to speak on educational matters. And the very atmosphere of the regions in which such men move and act must unquestionably be pure and holy. But, for there is a *but* unfortunately even inside this holy circle, the impression among the students who crowd round these high-souled teachers is not what it ought to be. The notion is general that the success achieved in the Christian and Presidency Colleges, due undoubtedly to the unwearied and earnest work of men of eminent attainments, is the result of other causes ; students believe that by attending these colleges they can get an inkling *in advance* into the specific features of the question papers for the University examinations. It is beyond doubt that such a fancy has taken a strong hold on the imaginations of our students. Groundless it may be ; but it is yet a fact, and one sufficiently important to demand our attention. The demoralization it causes is lamentable, and the impression should be removed if possible. It is needless to adduce evidence to prove the existence of such an idea, as it must have come to the notice of every educationist in the Presidency. I have come across many letters and post cards received by students about the time of the University examinations containing information of questions actually proposed by

the several examiners of the University or likely to be proposed by them. Once it was said that a certain professor of the Presidency College had taught only the first few pages of a certain text-book and had made his students understand that the questions at the final examination of the University would be confined to that portion of the book; and it was even given out afterwards that the result justified the alleged direction of the professor's and the consequent expectation. The authorities in some of the Madras colleges seem to have arranged for a series of examinations of the students in their respective colleges about November or December. The questions proposed at these examinations are looked upon as foreshadowing those to be proposed by the University. Undue importance is attached consequently to these questions, and it is these that are communicated to the moffussil students by their Madras brethren. I confess that this is but the fancy of the students and looks absurd on its face. But the belief is so general that it becomes necessary to consider it in spite of its intrinsic absurdity. What is a superstition is yet a matter for discussion and explanation, because of the deep-seated tendencies of the human mind on which it depends both for its inception and for its life. Similarly, the belief in the probable success of those who have the advantage of the tuition at the Madras colleges from the examiners themselves is too general and deep-rooted to be ignored.

That the students of a teacher who happens to be also the University examiner in his own subject have an advantage over others, every one must admit. Every teacher has his prejudices and predelictions, and must have them so long as he is only a human being. His mind has its peculiar conformation just as much as his body. And students must become familiar with his idiosyncracies in their intimate intercourse with him for at least two years; and this knowledge cannot but be of special service to them in the examination. It must also be stated that there are certain subjects, Philosophy being the most prominent among them, in which the whole of the instruction given by the teacher is fully saturated with his individual characteristics. He cannot transcend his own nature, howsoever he may try to do so; and the students who are in the secret of his internal structure must necessarily occupy a position of vantage in the examination. And when it is asserted that herein lies the most potent factor in the popularity of Madras colleges, there is nothing strange or incredible in that statement.

But this is not the sole explanation of their popularity, though it is the main fact in it. Tanjore contains a larger proportion of the Brahman population than any other district of Madras; and Brahmans seek English education more than the other sections of our countrymen. If the

college at Kumbakonam is yet poorly attended, it is because of a large number of the youths of Tanjore going to Madras and Trichinopoly for education. The attraction in Trichinopoly is mainly the cheapness of living at that station and the liberal free-scholarships and other helps which the Jesuit Fathers freely bestow upon heathen youths. Madras has attractions of its own, and the most important of them has been pointed out above. Other circumstances there are which act in the same direction. The Law College stands first among them. When a student goes to Madras to attend that college, his brothers and cousins naturally go with him; and parents find it more convenient to arrange for the stay of their children at one place, than at several places. Again, the Tanjore brahmin is ubiquitous, and the many offices and educational and other institutions of Madras are full of his kind. And this contributes in no small measure to the presence of the Tanjore brahmin in large numbers in the colleges of Madras. There is, besides, a notion among students that the professors and teachers of the colleges of Madras, being generally Europeans and men of influence, would be in a position to give them a fair start in life, which benefit they cannot possibly expect from the teachers in the moffussil. This is realized in a few cases, and these form a sufficient basis for further expectations in the same direction. Nor is this all. The new craving for a free life adds its share to swell the numbers in the metropolitan colleges. There the youths are farthest removed from parental control; and in a large town like Madras, society is quite powerless in regulating individual conduct. This is a lamentable feature in modern life, and many a youth has come back to the village of his fathers to a life of penury and degradation after a period of licensed extravagance in Madras. Much has been said of the educational influence of town life; but in respect of our metropolis, its influence for good is not easy to perceive, but its influence for evil is only too patent. This is not the place to dwell any further upon this. Suffice it to say that it adds to the population of Madras and to the numbers on the rolls of its colleges.

These several considerations explain how it is that students flock to the colleges in Madras in preference to a college like that at Kumbakonam. The unpopularity of the latter is due not so much to the inefficiency of its staff as to the extra-influences at work drawing the students away from Kumbakonam and other moffussil stations. I do not deny that the staff of teachers at Kumbakonam is not as good as it may be, and that it is not quite efficient and requires strengthening. But how should this be done? This I shall consider in another paper, with special reference to the remark that the college can become more popular only if it be provided with additional European teachers.

THE MADRAS GOVERNMENT MUSEUM AS AN AID TO GENERAL AND TECHNICAL EDUCATION.*

Looking at my annual administration report for 1894-95, in which I have to give an account of my stewardship during the year, I see that the Museum was visited by 368,282 visitors—a number which may be accepted as a proof that the institution is an eminently popular one. Analysing the figures, I find that, of the 368,282, 300,163 were unable to sign their names, *i.e.*, they belonged to the uneducated classes, who, according to the census report, 1896, constitute 92·13 per cent. of the entire population of the Madras Presidency. Of those who were sufficiently educated to sign their names, I find that 38,865 signed in Tamil, 13,803 in Telugu, 6,634 in English, 5,812 in Hindustani, and the remainder in Canarese, Malayalam, Mahratti, Nágari, Guzeráti, Bengali, Singhalese and Chinese; so that my visitor's book is, in its way, a polyglot curiosity.

An interesting fact in connection with the subject of visitors is that the Museum is, on the first Saturday of each month, closed to the general public, and set apart, with female attendants in charge, specially for Hindu and Muhammadan gosha females, who came, during the year 1894-95, to the number of 2,254, as against 1,524 in the preceding year, and only 749 nine years ago. The Museum is therefore, I am glad to record, taking its share in the promotion of female education and enlightenment.

For the great mass of visitors, who come under the heading of sight-seers, and regard the Museum as a *tamàsha* house, *jadu gahr* (wonder-house), or 'stuffing college,' it matters but little what exhibits are displayed, or how they are displayed, provided only that they are attractive. To the wholly uneducated classes, the main delight of a visit to the Museum is the recognition of familiar objects, which they shriek out by name, *e.g.*, *kàkà* (the crow), *pachi pambu* (the green tree-snake), *àni* (the elephant), *periya min* (big fish—the whale!), etc. The simple requirements of the uneducated are, therefore, easily satisfied without the expenditure of much brain-energy, but it is my chief duty to provide material adapted for the entertainment of those who come to the Museum, not merely with a view to getting through a spare hour of the day, but

* A lecture delivered at the Pachaiyappa's College, Madras, on the 31st October 1895, by Dr. E. Thurston, Superintendent, Government Museum.

with a definite idea of receiving instruction, and acquiring solid information.

You, as students, with the examination demon constantly before you, are compelled to gather in knowledge mainly by appeals to the auditory centre (the centre of hearing) through the medium of lectures. But, in many cases, the appeal to your sense of hearing is, or should be supplemented by a further appeal to the visual centre (the centre of sight) by means of diagrams, the black board, experiments, and specimens. Moreover, in elementary education, what are known as object lessons, the principle of which depends on the proverb that 'to see is to know, are resorted to with a view to investing the dry bones of lessons with some element of interest. The system of object lessons has, to my knowledge, made considerable strides in the city of Madras within the last few years, and constant application is now made to the Museum for the loan to schools of such varied objects as coral, bird's eggs, fishes, coal, iron, tin, birds, snakes, crocodiles, turtles, skulls, shells, etc. On one occasion, a full-grown stuffed bear was lent out to a pupil-teacher, to enable her to give an original object lesson at an examination; and application (which it was impossible to comply with) has even been made for the loan of an articulated skeleton of a large water-horse.

On several occasions in recent years, a prize has been offered to students for the best essay based on a visit to the Museum, and I have been asked to adjudicate on the essays. One competitor, I remember, commenced as follows;—"I had often heard that Mr. Thurston is a wonderful man, and, having seen him, feel that he was, as it were, set apart by the Creator for the special function, which he so ably fulfils." I am sorry to say that this touching appeal to my vanity did not secure the prize. Another competitor said that I was giving them an interesting lecture in the gallery, when I looked at my watch and said "Hulloa! It is time for breakfast," and they saw me no more, which was unfortunate. He, too, was not the prize-winner.

I have a very vivid recollection of paying a visit, some years ago, to a school in London, whereat a class, composed of tired and underfed children of the labouring classes, was struggling to learn the rudiments of physiology, and repeating, over and over again, in a musical sing-song, "scapula, clavicle, humerus, ulna, radius, carpus, metacarpus, phalanges," *i.e.*, the name of the bones of the upper extremity, the position of which had never been shown to them either in a diagram on the black board, or on the skeleton. Parrot knowledge, acquired in this way, is, in my eyes, an abomination, and it is a pitfall into which many of you students in India tumble, like elephants at a keddah, with the

inevitable result that, when you come up for examination, and find yourselves face to face with questions which take you off the beaten path of the lecture or the text-book, you are, to use an unacademic phrase, plucked; and to this cause is due the large number of "failed F.A.'s," with whom every head of an office, Government or Commercial, is so familiar.

Gentlemen, I speak with many years' experience as a University examiner, and know full well the common and exasperating type of answer, in which the candidate, who sails merrily along, so long as he can quote line after line, or page after page, of Huxley's 'Elementary Lessons in Physiology,' comes to utter grief when he has to think for himself, and answer questions, which are not directly answered for him in the book. A candidate will, for example, quoting from Huxley, tell the examiner that "it takes about four pounds of fatless meat to yield 4,000 grains of carbon, whereas one pound will furnish 300 grains of nitrogen," but will be wholly unable to mention ten food-stuffs, six of which contain nitrogen and four do not—a simple straight-forward question, for the answer to which I remember recording a melancholy number of duck's eggs, which, by the way, are examples of food-stuffs containing nitrogen.

But it is essentially in practical examinations that I notice a marked absence of development of the power of observation, which may be illustrated by two examples taken from a large stock at my disposal. I have here two specimens, which were given for identification at the practical portion of the last B.A. degree examination in Zoology. The one is the skin of a skate or ray (one of the elasmobranch fishes) beset with bony tubercles; the other is the glassy anchoring spicules of a marine sponge (*Hyalonema*). The former was, in most cases, identified as the skin of an elephant, hippopotamus, or rhinoceros; the latter as a piece of the tail of a horse. Some candidates even went so far as to say that the tail was in a fossil state, and that the horse was an Arab steed.

Our Indian museums would be fulfilling a very useful function if, in the capital city of each province, collections were brought together and properly exhibited, illustrating and forming a classified index to the natural history, ethnology, arts, archæology, economic resources, &c., of the province concerned.

I take it that a Museum, such as that of Madras, which, as compared with some of the great European and American museums, is a small and modest institution, has four primary functions to fulfil:—

1. The exhibition of a sytsematically arranged series, constituting an index, or illustrated guide, to the natural history (including minera-

logy), ethnology, arts, industries, economic resourses, &c., of Southern India;

2. To assist the cultivation of the powers of observation;

3. To be an agency for the enlightenment of the people;

4. To indirectly assist the cause of education, by the exhibition of collections teaching the most important points in the structure of the principal types of animal and plant life, &c., as an aid to pupils at colleges or schools, which are inadequately supplied with teaching museums, on the contents of which the lecturer can indent for illustrations to his lectures.

Let me illustrate the last point by reference to two examples taken from the animal kingdom.

The marine gallery of the Museum contains, among other things, a large series of stuffed specimens and skeletons of the fishes which inhabit those parts of the Indian Ocean and Bay of Bengal, which bound the southern portion of the Indian Peninsula. But this series, which constitutes a guide to the fish fauna of Southern India, is supplemented by a series, for the use of students, or those interested in natural history, illustrating, by means of carefully selected specimens, with descriptive labels, to take the place of the text-book, the principal types of Indian fishes, their external anatomy, dentition, adaptation to different modes of life, weapons of offence and defence, &c. When lecturing on comparative anatomy at the Medical College, I have, in the course of a lecture on the osteology of fishes, to make use of such dreadful names as neural and hæmal spines, inter-neural, inter-hæmal, and many others. No mere mouth utterance or diagram can effectually impress the names and position of the various bones on the students' memory, and I have accordingly added to my index collection this skeleton of a big sea-perch, with the various bones labelled. A few minutes spent at the Museum in the company of this skeleton will teach far more as to the names and relative positions of the bones than any amount of preaching on my part.

Here again, are a stuffed specimen, and a skeleton of a fox-bat or flying fox, such as many often be seen in Madras, roosting on trees, with head dependent, in large colonies, which would form very suitable material for an object-lesson in natural history. The stuffed specimen shows very clearly the broad folds of skin on each side of the body, which, when expanded by the spreading of the limbs, act as a parachute to keep the animal for a time in the air, and permit it to fly, bird-like, from place to place. The modification of the fore-limbs and breast-bone, connected with this power of aerial fight, is clearly brought out by the labelled skeleton. The sternum or breast-bone projects, so as to answer

the same purpose as the carina or keel of the breast-bone of birds, *i.e.*, to give attachment to the breast muscles, which set the wings in motion. The bones of the fore-arm are very long, and the metacarpal bones are very long and slender, forming the greater part of the hand. The thumb possesses a claw, which is of use to the animal in attaching itself to various surfaces, *e.g.*, when it is roosting on the bough of a tree, or in walking on the ground. The bones of the arm and the fingers, with their muscles, are enclosed between the two layers of skin, of which the wing-membranes are composed, and which they extend and support. The expansion of the wing is effected by the spreading out of the fingers, which radiate from the wrist, like the sticks of a fan. When the animal is not flying, but at rest, the long fingers are drawn together, and the membrane forms folds at the sides of the body. To any one possessing any knowledge of comparative anatomy, it is evident that, though differing in its external form, the fore-limb of the flying-fox possesses a marked homology or similarity in its essential internal structure (skeleton) with that of other animals possessing such different forms as the seal and tortoise, the mole, the higher apes, and man. The skeleton before you might, in fact, form the text of a lecture on the evolution of man, and common ancestry.

I have selected the specimens of the flying-fox out of an extensive *repertoire*, to illustrate the principle that the contents of a single case may not merely constitute an exhibit, to be casually looked at and hurriedly passed by, but may serve as the subject of an object-lesson, explanatory of various points in natural history in its relation to mammals, birds, fishes, reptiles, sponges, corals, crabs, starfishes and shells, &c.

With exhibition, my duties as a semi-educational official cease, so far as the general public is concerned. But it is for those engaged in teaching the young idea, more especially in elementary schools, to promote one of the principal ends of all museums, namely, the education of the people, and to make use of the extensive teaching material placed at their disposal in Museum galleries, by there supplementing the routine, and ofttime soporific tuition of the school room, by taking their pupils systematically round the museum, and explaining to them, in such simple and entertaining language as they can call into play, the lessons which can there be learned. The modifications of skin to form the horns of sheep and cattle, the antlers of deer, the spines of the porcupine, nails, claws, whiskers, hoofs, bills, and webs, the skeleton of the elephant, the whale-bone whale and toothed whale, the adaptation of the teeth of mammals to different forms of diet, piscivorous (fish-eating), carnivorous (flesh-eating), insectivorous, herbivorous (grass-eating) and omni-

vorous (adapted for all kinds of food—man, monkeys, and pigs), the life-history of silk worms, corals and coral reefs, suggest themselves to me as a few examples of subjects, worthy and capable of being worked up into interesting discourses.

Not long ago, I was vigorously attacked by an unscientific friend for not having exhibited, in the marine gallery, specimens of the seir and pomfret, the two fishes which are most esteemed by the fish-loving European community of Madras. As a matter of fact, they were there, but under their scientific names, *Cybium* and *Stromateus*, which my friend did not recognise. I at once set to work, and arranged two cases, in which all the fishes eaten by Europeans in Madras are exhibited under their popular, as well as their scientific names. The criticism of my friend was, in this case, just, but I sometimes wish that my critics would take me into their confidence before they drop on me. Not long ago, a correspondent of a newspaper was down on me for exhibiting a stuffed specimen of a dolphin in the mammal gallery, presumably because there was no space for it in the fish gallery. Had this gentleman come to me, I could have prevented him from making a bad zoological mistake at my expense, and explained to him that the sea, like the land, contains many mammals, which include the dolphins, the whales, and the dugongs. Some years ago, when I was away pearl-fishing at Tuticorin, I received the following stirring telegram from Madras:—"Whale on shore: stupendous spectacle, what is to be done"? To which, I replied "Stuff." On the following day, I received another telegram, announcing that "Whale is a shark," and it turned out to be the rare elasmobranch *Rhinodon typicus.*

Quite recently a hint was thrown out that, among other appliances, the Museum should, with a view to attracting attention to them, exhibit sewing-machines and iron ploughs. Now, if one modern appliance has been more widely advertised, and come into more general use than another among the natives of India, it is the sewing-machine, which any one, who is in the habit of wandering about the country, can see in daily use by native tailors in remote up-country bazaárs; and the suggestion as to iron ploughs recalled to my mind the story of the ryot, who was shown a new form of plough, and asked his opinion about it. He said (so the story goes) that it seemed to be a good plough, but was quite useless for this country, because there was no room for the driver to twist the tails of the bullocks.

But, though not in sympathy with the exhibition of sewing-machines and iron ploughs, I fully endorse a recent suggestion that "what is wanted is an institution, to afford, on a small scale, information which

will help to develop the trades and industries of the Presidency, similar in objects to that of the Imperial Institute in London, which was founded to foster and develop the commercial and industrial relations of the whole British Empire." I do assure you, gentlemen, that I have not been blind for ten years to the importance of developing the Museum on these lines, and that I have, clearly mapped out in my head, a scheme which will be put into action, now that increased space is placed at my disposal, for the development of a section, already existing in a rudimentary state, devoted to the illustration of the economic resources and industries of Southern India, and the establishment of what I would.

The boundary line, which separates art from ethnology, and art from industries, is extremely ill-defined. Such objects as, for example, musical instruments, arms and armour, come, more or less, as much within the domain of art as of ethnology. The tom-tom of this country, the primitive bows and arrows of so-called 'aboriginal' tribes, and the quaint representations of animals in brass made by the hill-tribes of Ganjám, belong to the domain of ethnology rather than art. A highly-ornamented *vina*, the richly chased arms from the armoury of the former Rajás of Tanjore, and Tanjore metal *swami* ware, belong, on the other hand, to the domain of art rather than of ethnology. The hand-painted palempores of Kálahastri, illustrating scenes from the Rámayana and Mahabarata, possess high artistic merit, whereas imported English printed cloths with debased Indian design are but gross caricatures of their Indian prototypes. Some natives, however, regard the trade-mark, which is stamped on imported piece goods, as very high art, and exhibit it conspicuously on the tail or front of the shirt.

The stone-carvings on the marvellous sculptures from the Amarâvatî suûpa, the carved doorway from the ruined city of Vijayangar, the collection of armour, and the contents of the art gallery (more especially the collection of native jewelry) of the Museum afford ample material for artistic design for workers in wood and metal, which is, it is sad to relate, but little availed of by those who should be interested in keeping design up to a high standard. The finest samples of native jewelry, from the collections of the Museum and School of Arts, have been admirably reproduced in the *Journal of Indian Arts*, and there lie buried, while design in native jewelry is steadily degenerating by reason of the replacement of jewelry of indigenous manufacture by imported jewelry of European manufacture. Easy communication between India and far distant countries and the consequent inrush of globe-trotters gifted, for the most part, with little artistic taste, and ready to greedily swallow the rubbish which is placed before them by itinerant hawkers, are responsi-

ble for much that is bad; and it is one of the duties of Museums in India to take a leading part in what is known as technical education, by the exhibition to the general public and those concerned in developing the arts and industries of the country, of the best types illustrative of the local arts and industrial wares, with a view to preserving the indigenous handicrafts and art-work from irremediable degeneration.

It is, I believe, a fact that the pioneer of the gold-mining industry in Mysore first had his attention attracted by noticing, in the Bangalore Museum, a modest mineral specimen labelled "alluvial," with a note of the locality from which it was taken; and a recent visitor to the Madras museum, well versed in economic mineralogy, made the remark that the mineral gallery contains hints for the making of several fortunes.

I do not, for a moment, claim, on behalf of an economic and industrial museum, that it can do much for industries which are already firmly established, or that I could, through its medium, teach our leading merchants or planters much which would bring more grist to the mill in connection with large industries such as cotton, indigo, tobacco, coffee, tea, &c. Such a Museum should, however, with a veiw to directing general attention to them, possess complete collections illustrating each product in the raw and manufactured state, and indicate the extent to which, and conditions under which, they are produced, and their commercial value. But, in addition to the major products, which are already firmly established in the market, there are many minor products which are capable of development, and becoming a source of more or less profit; and to these it is the duty of the Museum to attract attention.

Let me illustrate this point by reference to this specimen of fibre and bamboo scraper. In 1893, I was strolling one evening, with my eyes open, through the Coimbatore bazaár, when my attention was attracted by samples of a beautiful white fibre, hanging up for sale in many of the shops. Enquiry elicited the information that the fibre was obtained from the leaves of the American aloe (*Agave Americana*) which is grown along the Madras Railway line as a protective fence against stray cattle and other beasts, and flourishes exceedingly in the dry climate of Coimbatore, with its small yearly rainfall of twenty-one inches. The extraction of some valuable fibres is a source of great difficulty, and the Government of India some years ago offered a reward of 50,000 rupees to the inventor of the best machine or process for the extraction of rhea fibre. The Agave fibre is, however, easily extracted by splitting the leaves into four or five pieces, which are beaten with a wooden mallet, and the pulp removed by means of a bamboo scraper. The expense in connection with the extraction of the fibre is, therefore, reduced to a

minimum. Samples of the fibre were sent to England for examination by experts, and the highly satisfactory report was received that "it is of good roping quailty. Value £20—£22 per ton. Fibre equal in quality to the sample would sell readily in any quantity at slightly under the price of fair, current manilla hemp (£23—£24,) and its growth should be encouraged to the utmost."

Turning now to the mineral gallery of the Museum and the lessons to be learnt from it. The system adopted in its arrangement is the exhibition of an index series, intended to serve as a general introduction to the study of minerals, while the bulk of the gallery is devoted to an exhaustive collection of the minerals and rocks of Southern India (the Madras Presidency, Mysore, and Hyderabad). I notice, as a marked sign of the increasing interest in mineral enterprise, that whereas, a few years ago, I rarely received any references relating to minerals, I am now constantly being consulted by those engaged in commercial undertakings, in connection with the economic contents of the mineral gallery, or with the identification and possibilities of minerals sent to me for report. Many there are whose vain hopes I have shattered by a cold-blooded statement that a glistening mineral, which they have sent to me as gold, is "ironpyrites of no commercial value." On one occasion, a specimen was sent to me as a meteorite, which had fallen into a distinguished native gentleman's garden, but I "had the honour" to report that it was a brick.

The development of the mineral resources is, to my mind, one of the most conspicuous features of the last decade, so far as Southern India is concerned. In the first half of the present century, large sums of money were lost in mining for copper in the Nellore district, and the beryl or aquá-marine mines of Coimbatore were worked on contract with Government. Old workings, with excavated galleries, at Jungumrazpalli in the Cuddapah district, indicate that extensive mining for galena (the most important ore of lead) was carried on at some former time. The Singareni coal fields are at the present day turning out large quantities of coal annually, and coal has been won on a smaller scale on the Godavari river. The Mysore gold mines, which, in 1894, turned out gold to the value of $14\frac{1}{8}$ million rupees, have now an established position as gold producers. The Gor-do-norr diamond, which was picked up some years ago by a *ryot* at Vajrakarur in the Anantapur district, and wieghed originally $67\frac{1}{8}$ carats, was sold to the Nizam of Hyderabad for Rs. 1,65,000. Graphite (plumbago or black-lead), which is used for making lead pencils, polishing stoves, reducing the friction of machinery, and making crucibles, is being worked on a commercial scale in

Travancore, and manganese ore in the Vizagapatam district. Attention has of late been directed to the deposits of corundum (which, when red, is the true ruby, and, when blue, the sapphire) in the Madras Presidency and Mysore, as a valuable article of export on account of its possible use for the manufacture of aluminium. Mica (which is commonly known as talc), from the Inikurti mine in the Nellore district, has yielded a considerable profit to the enterprising gentleman who worked it, and there is no reason why still larger quantities of this mineral should not be found in the Nellore district, the Wynâd, Mysore, Travancore, and other localities. A rich deposit of phosphatic nodules has been brought to light in the Trichinopoly district, and their value as a fertiliser to crops is being practically tested by planters and manufacturers of artificial manures. Of the iron ores of Southern India (magnetite, hæmatite limonite, gothite, and chromite) magnetite is by far the most abundant. The iron ores of Southern India are practically inexhaustible in amount, and "the scarcity of fuel is the principal—perhaps the only—drawback to the successful development of the iron ores in various districts of the Madras Presidency. The iron industry, which was formerly so extensive, has died out on account of the increasing scarcity of fuel and the importation of cheap iron from England. In several parts of the country, we still find slag heaps standing in evidence of a formerly flourishing industry, which is hundreds of years old." Steatite, or soapstone, is widely distributed throughout Southern India, and largly employed in the manufacture of domestic utensils. Messrs. Sugg and Co., it may be noted, reported favourably on a specimen from Maddawaram in the Kurnool district, from which good gas-burner tops were made. Clays, suitable for the manutacfure of pottery, are also widely distributed throughout Southern India, but a more accurate knowledge of the hysico-chemical composition of these clays is required as the first step towards their employment for commercial purposes, *e.g.*, the manufacture of crockery Quartz, the most common of minerals, is represented by rock-crystal, smoky quartz, quartz cat's eye (of which the Museum possesses fine specimens from the Nallamallai hills beyond Cuddapah), and "Vallam stones," which are found at Vallam in the Tanjore district, collected by lapidaries, and cut into various useful and ornamental articles. The Museum possesses specimens, from the Madura district, of the clear and pure variety of calcite (carbonate of alcium) known as Iceland spar or doubly-refracting spar, which is largely used in optical instruments for affording polarised light. Asbestos, which is unaffected by heat, and used for lining iron safes, as a packing for steam-pipes and boilers and in gas-stoves is represented in the Museum collection from the Salem district, the Vellore bazâr and Mysore; and selenite, or

gypsum, which when heated, falls to a powder as "Plaster of Paris," from the Anantapur, North Arcot, Trichinopoly, and Madura districts, Mysore, and Hyderabad. Asbestos and gypsum are both valuable economic minerals, concerning the abundance and distribution of which more precise information than we at present possess is required.

Specimens of all these minerals are on the table for your inspection. Enough has been said in the sketch, brief as it is, to show how rich are the mineral resources of Southern India. I notice that the Bengal Government has recently arranged with several mines to enable students in the mining class at the Sibpùr College, Calcutta, to gain practical experience, and have undertaken to pay a premium of Rs. 500 for each boy who is received as an apprentice in the mines. This is a distinct advance in the right direction, and I should, 1 confess, like to see our Madras students of geology compelled, as a part of their curriculum, to conduct and witness the carrying out of prospecting and mining operations, and equipped with sound, practical knowledge of field-work, and fitted to direct the work of quarrying, boring, digging and searching for, winning, and working minerals.

I gather, from an examination of the University calendar, that the history course, prescribed for the B.A. Degree, includes "Ethnology regarded as the science of the formation, distribution and classification of races, and descriptive of their manners, customs, religion, language, mental and physical characteristics; its methods, and main features of its connection with (1) anthropology, (2) archæology, (3) comparative philology. Classification and description on the basis of anthropology of cranial development; facial angles; weight of brain; colour of hair; skin; eyes; term of life; archæology; ancient weapons and implements; pottery; architecture."

Of this mixed group of correlated subjects, I have first a very few words to say concerning comparative philology and archæology. The Madras Museum is, to borrow a phrase once used by Professor Huxley, "a consultative library of objects," which is supplemented by a public consultative library of books; and it is more especially to the latter that you should refer for information, over and above that which is derived from lectures and text-books, in connection with the study of comparative philology, though you will find material for interesting study in the rich collection of copper grants, which have been published, with translations, in the *Epigraphia Indica*. In the library, you will find Burnell's 'Elements of South Indian Palæography,' Caldwell's 'Comparative Grammar of the Dravidian Languages,' the various writings of Max Müller, the *Epigraphia Indica*, and a host of other works bearing on

nearly every known language, ancient or modern. In the pursuit of knowledge of archæology, more especially so far as Southern India is concerned, you will be able to study, in the archæological section of the Museum, those wondrous sculptures from the Amarâvatî stûpa on the Kistna river, which bear evidence of Greek or Baktrian art, and the date of which has been placed in the latter half of the second century; the stone flakes, celts, scrapers, hammers, &c., found in different parts of Southern India; and the numerous objects in iron, bronze, shell and pottery, discovered in cairns and cromlechs on the Nilgiri hills, and in other localities. But your study of the archæological collections should be supplemented by reference, in the library, to such works as Breeks' 'Primitive Tribes of the Nilgiris,' Phillips' 'Report on Tumuli in the Salem district', the publications of the Archæological Survey of India, etc.

Anthropology is divided, according to modern nomenclature, into two main divisions, anthropography and ethnography. "The former treats of man and the varieties of the human family from a purely animal point of view, that is, from a structural and functional aspect, while the latter deals with him as a social and intellectual being and includes enquires as to his manners, customs, institutions, history, traditions, language, religion, intellectual aptitudes, industries, arts, &c."

The Madras Museum has quite recently become a centre for the study of anthropology (a bureau of anthropology), and I had the pleasure of recording, in my last administration report, that an entirely new departure has been made by the commencement of a detailed anthropological survey of the races, castes, and tribes, which inhabit Southern India. This survey includes not merely the record of anthropometric measurements, but also a detailed record of descriptive characters (skin, eyes, hair, face, &c.), personal adornment, clothing, tattooing, manner and customs, religion, ceremonial observances, marriage customs, games, arts, industries, &c. Further, photographs are taken, and collections of jewelry, clothing, weapons, domestic utensils, models of dwelling huts, &c., acquired, and exhibited in the Museum, which will thus become, in course of time, a guide to the anthropology of the Native inhabitants of Southern India, illustrated by objects and pictures.

"The more remote and unknown the race or tribe, the more valuable is the evidence afforded by the study of its institutions, from the probability of their being less mixed with those of European origin." Tribes which, only a few years ago, were living in a wild state, clad in a cool and simple garb of forest leaves, buried away in the depths of the jungle, and living, like pigs and bears, on roots, honey, and other forest produce, have now come under the domesticating and sometimes detri-

mental influence of contact with Europeans, with a resulting modification of their conditions of life, morality, and even language. The Paniyans of the Wynàd, and the Irulas who inhabit the slopes of the Nilgiris, now work regularly for daily wage on planters' estate; and I was lately shocked by seeing a Toda boy studying for the third standard in Tamil, instead of tending the buffaloes of his *mand*. The Todas, whose natural drink is milk, now delight in bottled beer, and a mixture of port wine and gin, which they purchase in the Ootacamund bazàr. On one occasion, I am told, a planter met two stalwart Todas returning from a funeral ceremony, and carrying across their shoulders a bundle, which, on examination, resolved itself into a Toda woman in a very advanced stage of intoxication.

"The rapid extermination of savages at the present time, and the rapidity with which they are being reduced to the standard of European manners, renders it of urgent importance to correct these sources of error as soon as possible." Ample proof can be adduced in support of the fact that European influence imports trade with other countries, and the struggle for existence is bringing about a rapid change (said from an ethnographic standpoint) among the native inhabitants of Southern India, both civilised and uncivilised. The employment of tiles and kerosine tins in lieu of primitive thatch; the import of cotton piece goods, which represents roughly 40 per cent. of the total import trade, and of umbrellas to the value of over 4,000,000 rupees annually; cooly trade and migration by sea to Assam, Burma and Ceylon; the decline of the national turban in favour of the less becoming porkpie cap or knitted night cap of gaudy hue; the replacement of peasant jewelry of indigenous manufacture by the importation of beads and imitation jewelry made in Europe, and accurately copied, in many instances, from specimens sent to Exhibitions, and purchased by the agents of the manufacturers; the abandonment of the use of indigenous vegetable dyes in favour of the cheaper and more rapidly operating anilin and alizarin dyes; the use of lucifer matches by 'aboriginal' tribes, who formerly made fire by friction; the supply of new forms of food, and of beer and spirits in the bazars; the influence of the Government in suppressing *thuggi*, *sutti*, the human (*meriah*) sacrifices of the Khonds, and Toda infanticide; the administration of justice; the spread of education; religious teaching:—these and many other factors are the causes or signs of a radical change in the ethnographic conditions of the country.

A Toda lassie curling her ringlets with the assistance of a cheap looking-glass; a Toda man smeared with Hindu sect marks, doing *puja*, and praying for male offspring at a Hindu shrine; a Bengali *babu* with

close-cropped hair and bare head, clad in patent leather boots, white socks, *dhuti*, and conspicuous unstarched shirt of English device; a Hindu or Parsi cricket eleven engaged against a European team; the increasing struggle for small paid appointments under Government—these are a few examples of changes resulting from the refinement of modern civilization.

It has recently been said that "there will be plenty of money and people available for anthropologica' research, when there are no more aborigines;" and it behoves our museums to waste no time in completing their anthropological collections. I, for my part, should not be surprised if, a few years hence, a new "common object of the sea shore" appears in the form of a Toda student, dressed more elaborately than in the tribal cloth, and discussing social and political questions with his fellow-students on the Madras marina.

I notice that, at the last B.A. Degree examination in ethnology, one question ran as follows:—Point out the value of (*a*) the hair, (*b*) the skull, (*c*) the face, as distinctions of race. Were I, with my love of practical tests, concerned in the answers to this comprehensive question, I should expect the candidates to show signs that they are not only "almost at bursting under" the weight of book-knowledge, but familiar with the method of determining the facial angle with the weight of book-knowledge, but familiar with the method of determining the facial angle with the goniometer, of practically estimating the most important measurements of the skull, and measuring that most important member, the nose, with the compasses, callipers, and tape. It has been laid down as an axiom that the intelligence is in inverse proportion to the breadth of the nose; and when I am investing the claims of applicants for a clerkship in my office, I am in the habit of scrutinising the nose as well as the hand-writing, though I do not advertise the fact, in the local papers or gazette, that "no one with a nasal index exceeding 78 need apply."

I have, in a rapid summary, given you an outline sketch of the scope and contents of the institution which it is my pleasure and privilege to direct, and which I jealously guard as being, to a great extent, a child of my own creation. It only remains to thank you, gentlemen, for affording me an opportunity of giving public expression to my views, and to thank you, Mr. Chairman, for presiding over a lecture which has, to some extent, poached on your preserves of Technical Education, which I only yesterday saw ingenuously defined, at an examination, as "the fine arts, the drawing, the painting, the carpet weaving, the making statues, and last, but not least, the short-hand writing."

PHYSIOGRAPHY AS AN ALTERNATIVE FOR THE F.A. EXAMINATION.

The scarcity of scientific knowledge among the students of this University forms a topic for many a lengthy discussion before Literary Societies. It is often complained by those who have had a little experience of such students, that their power of observation on the phenomenal world is at a minimum, so as to verify the Russian proverb of the non-observant man : " He goes through the forest and sees no firewood." It is frequently observed that this University has not among its graduates any one exploring, or attempting to explore, the vast fields of nature to discover the rich and valuable ores lurking therein, or at least to assimilate and maintain what they have learnt already for the different examinations. It is a sad truth that the tastes of the students for particular subjects have not been already formed in the F.A. course, that their choice of the optional subjects for the Degree Examination depends not so much on their individual tastes for the different subjects as on a careful consideration of the percentage of passes in the different Branches. To instance: While the results of the II. A Branch of the B.A. examination gradually became poor during the years 1893 and 1894, owing probably to an attempt on the part of the examiners to raise the standard of that examination, they told much on the strength of the college classes for that Branch, and many students took to History or Philosophy. That close observation of little and apparently unimportant things, which won fame to Galileo as the inventor of the pendulum, that intellectual eye which guided Sir Samuel Brown to the construction of his suspension bridge from the tiny spider's nest which he saw accidentally suspended across his path, that scrutiny which, in its absence, would not have enabled Columbus to quell the rebellion among his sailors and discover the New World and, in short, that close inspection which is the secret of success in business, in art, in science and in every pursuit of life, is evidently wanting in many of our students.

Such a habit, as is true of all habits, can be only gradually formed and hence the subjects aiming at this habit, must be continued for a number of years in every student's course. The critics do not fully realise the difficulties in the way of intending scholars arising from the absence of anything like encouragement for further progress in the subject in which they are initiated when they take their degree, *e.g.*, a good University library, paying public lectures, a well-furnished laboratory or workshop, which form the pride of the western nations especially France

and Germany; many a poor student often comes up and has an inclination to continue and improve his knowledge. Where are the bursaries and fellowships as in Great Britain? Where is the laboratory he could go to? It is only those heaven-born professors in well-furnished colleges that can aim at something, provided they have the inclination and leisure for such; and such colleges are not within the reach of many.

This lack of spirit I cannot fully impute to the above difficulties. The present system of education has contributed to a fair portion of the result, or at least the system of education in vogue is not fully adapted to fulfil the little it is alleged it could towards the cultivation of a scientific turn of mind. It must have struck every observant man that there are wide gaps in the continuity of the scientific culture in the modern system of education, which must be made up by subsequent reforms in the same.

It is a lamentable fact that India, at this stage, has not got scientific topics, any discoveries in chemistry or in any kind of manufacture for its daily conversation, (the press verifies it), and this is mainly ascribable to the ignorance of the masses, the absence of many centres of manufacture on a large scale, and the philosophic and the religious turn of mind of the people.

It is not new to a teacher if I tell him that his pupils have not seen a Brahma press or a siphon used outside the school compound, and their parents have scarcely any time and disposition to attend to and encourage these in the close observation of anything brought to their notice; nor is it strange to say that the boys have rarely seen a thermometer but as an appendage to a doctor. When such elementary notions are rare, it is desirable that school education which should be a complement of home education and of the surroundings, and which, unfortunately, has to assume the whole of the early education in India should embrace all that the home is, at present, unable to take upon itself.

The importance of a knowledge of nature and its phenomena and a habit of close observation has been recognized and well insisted on by the University and the Education Department by making such a study compulsory in the High School, and by the substitution of a scientific method of teaching the various school subjects as History and Geography for the old system of dull routine.

Though the present curriculum of studies for the F.A. examination compares favourably with the previous one by the requirement of a higher standard of proficiency in English and the introduction of a new subject, physiography, as an alternative to physiology, yet it does not come up to the desired level of making physiography as much compul-

sory as English or Mathematics. The study of science in the High School and the habit of close observation slowly formed in that course should be continued further to strengthen that habit.

The F.A. course may be regarded as a preparation to the next one of specialization and hence in this every student should be given a liberal education. It is incumbent that a student, worthy of the name, should know as much of his own body as of the other bodies he handles and examines. If we suppose that this course aims at a fair amount of knowledge in all the subjects, any one of which he may happen to select for the B.A. course, it is necessary that the knowledge of physiography should be required as much as that of Mathematics or History. This stage is intended to help and to prepare the way for the acquisition of a greater amount of accurate information in the next. Our aim at this stage is 'a little of many subjects' to lead to 'much of one of these.' Hence there is one point worthy of consideration in the curriculum of studies for the F.A. examination—whether it would not be more beneficial to require a general knowledge of both the subjects, physiography and physiology, instead of allowing a choice between the two which are preparatory to the two Branches II. and III. of the B.A. Degree examination. The F. A. course being only preparatory allowing of specialization in the next course, it is desirable that physiography should be taught as much as physiology. In the sister University of Bombay, science is a subject compulsory for 2 or 3 examinations above the Matriculation standard and the knowledge of physics and chemistry of any undergraduate in that University is far superior to that of one in this University. This good example might be imitated with advantage. The study of elementary science being already commenced in the Matric course in this University, it should be continued to a point where one might have a fair idea of the subject and become a specialist in the same if he likes it.

Physiography should not, therefore, be left to the choice of the student, so that he may make use of the opportunity given him or neglect it. If one takes up science for his optional subject in the B.A. course, it is necessary that the elementary knowledge of science given him in the High School should not be allowed to rust out and decay meanwhile; but if he happens to choose otherwise, it is desirable that his knowledge of the natural laws must be of such a standard as will enable him to explain the common phenomena around him, fortify his mind against superstitious wonder and make him a worthy educator of a worthy son.

The science of the human body one must know as well as that of the outside world. A knowledge of the two being essential to each, and

the standard of knowledge aimed at in the F.A. course being only elementary, it is not desirable that one should be forsaken for the other. The taste created in the minds of some pupils for science in the previous course impels them to choose physiography while, at the same time, the idea of neglecting self induces them to select the other. And I know of some students who have chosen very reluctantly one of these instead of the other and would have fain taken up both, if time and circumstances allowed. The students are really in a dilemma in the selection. Nor are the teachers free from any difficulty when they recommend their students to select either of these. We know well that one can never be substituted for another; we cannot say that one is better than the other. To be ignorant of the first is as shameful as to be ignorant of the second. They are like rain and sunshine to luxuriant growth. If I have reasons to believe that a student has a taste for the natural history sciences, I have to suggest to him to take up physiology; but, at the same time, by that very act, I am inducing him to ignore a great part of the world around him.

A change in the F.A. curriculum of studies is desirable. The required change may be any one of the following forms: (i.) the University may make a study of both the subjects compulsory requiring a minimum in each for a pass in the F.A. examination or (ii.) it may require certificates of attendance in both while requiring a minimum in only one of them at the option of the student or (iii.) it may require a minimum in both the subjects taken together. But frequent changes are always attended with peculiar difficulties.

The period of changes is just now over: yet there is much scope and facility for the various institutions to have the desired change practically carried out. The changes could be practically put into effect wherever the progress of knowledge of the pupils is cared for. In many colleges, this change may be introduced with little or no addition to their expenses. In almost all the colleges, the students are taught both physiology and physiography in the F.A. course. In these, with no extra cost in the shape of payment to new professors and with no great additional inconvenience, both these subjects may be taught making their attendance compulsory for both while leaving to their option a choice between the two for the F.A. examination. By allotting in the time table different hours for these, the students may attend both.

This change would tend to make the F.A. course a fair preparation for the next course; it would also remove one of the frequent complaints and the vague guesses of some professors as to the efficiency of the science teaching in the standards of the Matriculation examination. Professors

of Branches II. A. and II. B. often complain that their students on admission know very little—'nothing' of chemistry and physics, and they have expressed their surprise how these students passed the Matriculation examination securing a minimum in science and stranger still, how they managed to forget that so soon. This poverty of their knowledge often leads the professors to arrive at all sorts of generalizations founded on uncertain data as to the intellectual capacity of the Hindu student. This drawback and the renewed difficulties in clearing the way for the specialization in science in the next course, would be a thing of the pasts if this change be brought into effect soon.

A student trained according to this system is likely to have a more widespread and accurate idea of the common phenomena than one under the present system. The possible advantages flowing to a student from such a change, even in case he happens to select other subjects than science for his optional in the B.A. course, far outweigh the possible disadvantages in the way of having this plan carried out.

If an F.A. deserves the name of an undergraduate, if it be a fact that this course is only preparatory to the next course, and if it is, therefore, inferable that he is well furnished with the first principles in all the subjects allowing of ready specialization in any of these in the next course, and lastly if it be the aim to impart a liberal education in this course, it is essential that a fair amount of knowledge of the phenomenal world must be made compulsory either by a public test or by at least a certificate of attendance in that subject also.

M. C. S. ANANTHAPADHMANABHAN, M.A., L.T.

SELF-GOVERNMENT TO CHILDREN.

The art of Self-Government is one which contributes in an immense degree to the ease and happiness of our lives in this world; and unless it is begun early in life when we are children, it is not quite so easy to acquire it when we have grown up to be men. So then it will be incumbent on those who are in charge of children to train them early to govern themselves. Children should be trained, as far as possible, to control their appetites, passions and affections, to keep the lower powers of nature under the command of their reason, to use their will by the light of their reason and not by foolish and headstrong humour, and last to direct their thoughts in right and useful directions. All these cannot be effected to a thorough and completely satisfactory degree; much will, of course, depend on the lessons of experience which the individual gathers in his progress

in the world. We shall here just refer to a few points to which the attention of the parent and of the teacher should be given with a view to secure to the children under their charge some elements at least which go to form self-control in them.

The appetite of taste is the first thing which dominates the passions of children and they should be taught early to restrain it. How often have we seen children craving for every dish that comes to be served; they must have a share of everything that is brought and must eat of everything. Fond parents indulge their offspring and later on grieve to see the serious inroads made on the health of their little ones; or these children often grow up to be gluttons and consider themselves placed in a happy condition if they can find enough to satisfy their appetite of taste. Another kind of fault in children in seeking the gratification of the appetite of taste is their extreme niceness in trying to please their palate. They would choose things for themselves and not be guided by their elders. They would be satisfied only with what they want and would not take even a better substitute. Children indulged in this way of pleasing their taste get ill very often and they cannot be induced even to take a pill or a spoonful of medicine. Besides the appetite of taste, there are other longings in children in which they are likely to indulge too far, unless they are restricted and controlled in time. We refer to cases of children whose eyes are never satisfied with seeing, nor whose ears with hearing. They cannot hear of a show without going to see it, nor of a tomtom without at once running up to see what it is about. This is curiosity indeed, but it is impetuous curiosity. We admit that children and young men should get a sight of things uncommon in nature or art. If some strange wild beasts, birds, &c., are to be shewn, if some admirable pieces of work, a machine, engine &c. are to be exhibited, if it be the occasion of a public demonstration as the visit of a governor or prince, if it be a military review or a great trial and so on, we readily allow that these sights are worth seeing. Most of these are things which are not often repeated and it is right that curiosity should be so far gratified as to give them once in their lives an opportunity of knowing what these things are like and of furnishing their minds with useful ideas of the world of nature and of art. But for children and young men to haunt every public spectacle and to suffer no sight to escape which might please their senses, is most damaging to their virtue and their health and to restrain them is the proper duty of those who have charge of their instruction and, therefore, have a just and natural authority over them. Thus we have shown to

some extent how the appetites and inclinations of children, if not placed under proper discipline, might lead to evil consequences.

Children, we all know, grieve and rejoice impetuously and from mere trifling causes. They love and hate rashly and violently and their desires and aversions are based on very slight and insufficient grounds. Thus we see very early in children these passions and affections, and it becomes the duty of the parent and the teacher to watch over these young emotions and to regulate and govern them by prudence and caution as often as irregularities in the manifestations of their passions demand. Let children be taught early that the various causes that disposed to make them sorry or grow fretful or in any way tended to disturb their temper were after all mere trifles and that they should always keep their mind calm and undisturbed. The great fault to which children are frequently subject is loss of temper. Anger should not be allowed to break out on every slight occasion. They should be taught to put away their little quarrels and to forget them. These fits of anger are likely to return over and over again and on every such occasion, warnings and instructions should be repeated. Children controlled by a calm and patient guardian soon learn to conquer this feeling of anger and lay the foundation for deliverance during their future course of life from a host of evils which owe their origin to fits of irascible temper.

Many children have such wild fancies that they cannot be easily made to fix their mind upon any object for any length of time; the motion of any person or thing that is near them, a flying feather, or any noise calls them away from their present business. At a time when their eyes should be employed on their books, they would be gazing on some thing that is a part from their immediate work. This roving and wandering tendency, this volatile humour, if not gently curbed and carefully corrected in early years, will bring on unhappy consequences in later life and deter them from performing to any degree of perfection any piece of work they may undertake. But this correction should not be effected by any severe or violent means. Such conduct on the part of the chastiser may destroy all the seeds of curiosity and break or overwhelm an active and sprightly turn of mind. Therefore, proper and agreeable methods must be employed to persuade and incline the child to the work in hand. It is attractiveness and interest more than fear and severity that are better fitted to fix the thoughts of children on the subject before them. There are also cases among children of perverse obstinacy in doing a thing from fancy or wild humour. They do it because it pleases them to do so; and they would not do a thing, nor go to a place &c., for they say they

hate doing so; all from mere humour. In all such cases, a quiet and calm conversation tends to enforce the truth that everything should be done as dictated by reason and not as impelled by humour or fancy.

REVIEWS OF EDUCATIONAL PERIODICALS.

THE INDIAN MAGAZINE AND REVIEW, (October 1896).—Contains an excellent article entitled "Some Notes on America" from the pen of Mr. J. N. Bannerjee. The rapid advance of American Civilisation in the U. S. A. is graphically portrayed, the amiable and unassuming manners of Uncle Sam are vividly described and the article concludes with some strictures on the present defective system of English Education in India.

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The *Schoolmaster* has a series of articles on the analysis of H. M.'s Inspectors' reports, with running criticisms. The Inspectors themselves are weighed in the balance and termed sheep and goats. One officer is spoken of as "jejune, perfunctory and official;" another as "generous, vigorous, luminous and profound;" and so on. The *London Journal of Education* observes in this connection: "While condemning, as strongly as our contemporary, the absurdity of making a high University degree the sole qualification for an Inspectorship (as in the case of Mr. Matthew Arnold), we should be equally opposed to making the Inspectorate a reward for successful teaching. It by no means follows that a good teacher will make a good inspector, and unless the inspector has had wider experience and culture than the teachers he inspects, there is imminent danger of uniform mediocrity and the stagnation of routine. . . . . The great majority of Inspectors are untrained or self-trained, and the great majority of our elementary teachers are, we will not say uncultured, lacking in that higher culture which, rightly or wrongly, we associate with the older Universities.

* * *

The Atlantic Monthly has put forth a strong plea for the reasonable teaching of English Literature. The "spirit of literature" is what is wanted. The master should read aloud more and criticise less. This puts us in mind of one of Mr. Sulley's stories: "I am afraid you cannot understand it, dear," says the mother, reading a poem. "Oh, yes, I can, if only you would not explain," replies the child. Hearing a poem read by a sympathetic and intelligent reader goes far towards enabling the hearer to understand the piece of verse. Any explanation that may be

deemed necessary should be very brief. But in this Presidency where English Literature teaching has been reduced to the stereotyped plan of note dictating for a couple of weeks or so, observations like those made above are hardly needed.

EDUCATIONAL NOTES.

Mr. T. W. Arnold, who was for some years a Professor in the Muhammadan and Anglo-Oriental College at Aligarh, will shortly publish a book on the spread of Muhammadanism by missionary methods.

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The next Muhammadan Educational Conference will be held at Meerut.

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The Universities of Allahabad, Bombay, the Punjab, the Cape of Good Hope and Torrento, have been affiliated to the University of Cambridge during the current year.

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An American firm of publishers has engaged to pay Rudyard Kipling for a new novel from his pen at the rate of a penny per word. Taking 2,500,000 as the approximate number of words his book will contain, (and that is about the average size of his writings) he will be the happy recipient of £10,000!

* * *

The payment of the publisher is not always the surest test of the genuine merit of a work. It may be a safe indication of the popularity of a writer; but how few classic authors who were deified by posterity escaped starvation! Truly has it been said that England never recognises merit in an author in his life-time!

* * *

Milton did not receive even ten guineas for his "*Paradise Lost*" while Erasmus Darwin is said to have received a thousand guineas for the second part of his "Botanic Garden"!

* * *

On being asked at a Royal Academy dinner whether he was going to bring out a new poem, Goldsmith replied, "I cannot afford to court the draggle-tail muses, they would let me starve."

* * *

Robertson was paid £3,800 for his "History of Charles V," while Thomas Carlyle, after twenty years of toil and trouble Robertson never

dreamed of, was not able to earn more than an average annual income of £150. Such are the vagaries of the reading public.

* * *

It is stated that the King of Siam has presented to the University of Boston a set of Tripitaka, the sacred writings of the southern Buddhists, in thirty-nine volumes. Each presentation page bears the king's signature and a synopsis of the contents in two Indian dialects, English, French and German. Boston University is the first to establish a chair of the comparative study of religions.

* * *

The non-official members of the house with one exception, *viz.*, Lord Cranborne, knew nothing of the Education Authority which was to be constituted by the New Education Bill. The Conservative party knew absolutely nothing about it, so that when the committee proceeded to discuss the Bill, "chaos reigned supreme."

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The action of the Technical Education Board, London, in throwing open a "limited number" of scholarships for pupils from other than public elementary schools has created heart-burning in some quarters. It is argued that the middle-class parent with half-a-dozen children deserves as much consideration as the artisan or the mechanic, in as much as he escapes no tax, no rate. Nay, more than this, he pays his share of the School Board rate and of the income-tax, to which the father of the elementary schoolboy does not contribute. The *Educational Times* suggests that an approach to justice would be made if, after reserving a certain limited number of scholarships to pupils in public elementary schools, the remainder be thrown open to the best candidates, irrespective of the schools in which they study.

* * *

Great scientists in England are now becoming alive to the backwardness of England in its provision for specialised technical instruction. At the present time, electricity plays a most important part in chemical manufacture. Recognising this new development, Germany has established large electro-chemical laboratories in three of its Universities, and endowed special professorships besides the chair that has been in existence for some years at Frankfort. England has only two small laboratories of that sort, one at the Technical College, Finsbury and the other at the Birmingham Municipal Technical School, and even those do nothing in the way of research in electro-chemistry, but only teach electro-plating and electro-typing. The rest of the seats of scientific culture (?) in England do not bestow a thought on anything else than making pupils pass examinations.—*The London Journal of Education.*

In one of its leaders, the *Times* says that the question concerns manufactures alone: "Industry must endow research." It is the Government that must do the needful in this matter; and the manufacturers cannot be expected to co-operate for the purpose of founding Universities wherein to train specialists. It is true that something has already been done in this direction. Hundreds of technical schools have been started in the land and impart a rudimentary knowledge of the principles underlying the industries to zealous students. This is a laudable work, the *Times'* contempt for it notwithstanding; but more should be done and that means a greater outlay. "The Germans have found that nothing pays so well as knowledge, and that new knowledge always pays in the long run."—*The London Journal of Education.*

* * *

Mr. Arthur Sidgwick thinks that the question of training teachers for secondary schools is not new, but has been discussed in various quarters for over a century. He attributes the increased interest which this subject has roused to several causes. First, it is an anomaly that, while primary school children are bound to be under certified teachers, as many as half a million pupils in secondary schools should be taught by untrained persons. Thoughtful people have come to recognise this anomaly. Secondly, the pressure upon private schools of incompetent or fraudulent teachers has rendered imperative the need of registration to exclude the impostors; and registration implies proper teaching qualification. Thirdly, large and active educational societies took up the subject for discussion and the ball thus started has been kept going by general discussion and the upshot of it is that various tentative efforts have been made to give the subject a practical turn. Two Scotch Universities and the University of Durham are training teachers of Secondary Schools. The College of Preceptors, the Universities of London, Cambridge and Victoria have established examinations and given diplomas to trained Secondary teachers. Fourthly, from time to time bills for the registration of schools were brought in and referred to select Committees, which viewed the question very favourably. Last year, the Royal Commission regarded "the need for some official test and standard of professional efficiency as a matter of general agreement," and recommended the institution of a register with a "certificate of adequate knowledge of the theory and practice of Education." Last and most important of all, the present Government has introduced a bill embodying the exact proposal of the Commission."

* * *

The following instances of extreme optimism, if not self-gratulation, will be interesting to our readers. Southey speaking of his poem 'Ma

doc' wrote: "Unquestionably the poem will stand and flourish. . . . . . William Taylor has said it is the best English poem that has left the press since the 'Paradise Lost'; indeed, this is not exaggerated praise, for unfortunately there is no competition." He was confident that his 'History of Brazil' "will ages hence be found among those works that are not destined to perish; it will secure for me a remembrance in other countries as well as in my own." Southey's vanity in this respect is equalled only by that of the Senior Wrangler who, happening to enter a London Theatre at the same time as His Majesty George III., was perplexed to find the whole audience stand up in awe and salute him, as he fancied, when in reality the public paid this obeisance to their King. Dr. Bell was also a sinner in this respect. He wrote to Joseph Lancaster "If you and I live a thousand years, we shall see this system of education (the monitorial system) spread over the earth." How soon his prediction was destined to be falsified posterity knows!

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The one-hundred-and-fiftieth anniversary of the Princeton University—otherwise known as New Jersey College—was observed on the 20th October 1896.

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The following is the professional opinion of a celebrated specialist with regard to the tinting of the school-room walls.

"The walls of all schoolrooms should have some color; for I have often seen children immediately and permanently recover from a persistent recurring diseased condition of the eyes when removed from a schoolroom with white walls, and sent elsewhere to school, or kept at home, where the walls are tinted. The principal color of the walls should be of an even tone, so that the amount of light reflected will be the same from all parts of the surface, as waving or clouded effects are very trying to sensitive eyes. Any color may be placed in its proper position with regard to its safety for schoolroom walls by remembering the general rule with regard to the sensitiveness of the eye to the colors of the spectrum, which is, that the nearer the color is to the red end of the spectrum, the more irritaing it is to the eyes; and the nearer the color is to the blue end of the spectrum, the easier it is to the eyes, with the single exception that the extreme violet rays are also irritating.

"From this it will be seen that red and all its derivatives should be rigidly excluded, and orange also is nearly as bad, while yellow should never be taken by preference, but may be justifiable in an otherwise dark and badly-lighted room. Greens and blues are absolutely safe colors, and it is not at all necessary that the colors should be pronounced: the depth of color should be made dependent upon the amount of light coming into the windows, and

upon its quality, as, for instance, whether the windows have a northern or southern exposure, whether the sun's direct rays can come directly into the room when the sun sinks low in the heavens in the middle of a winter afternoon, and other surrounding circumstances of each individual room.

"The color of the ceiling of a schoolroom is fully as important as the coloring of the walls, particularly when there is any amount of reflected light.

"All I have said with regard to the color on the walls is doubly true, when applied to the color of the window-shades, and this fact should always be taken into consideration in furnishing and decorating a schoolroom."

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Part XIII. has just been issued of the English Translation of the Ashtádhyayi of Panini, the celebrated Sanskrit Grammarian.

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The almost entire absence of the state of bachelorhood in Modern Hindu Society is to be deplored. The number of Hindu teachers who reside within the walls of a college and look after the discipline and behaviour of the students, is very small.

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Probably the most interesting Englishman that ever came to India was Macaulay who spent nearly five years in India. An eminent Judge of English literature declares Sir George Trevelyan's admirable biography of his uncle to be the second best biography in the English language, the first being, of course, Boswell's Immortal Life of Johnson.

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Hindu students are generally known to throw away their books as soon as they finish their college course and take their degree. We would draw the attention of our hindu readers to Macaulay's reading habits. In one of his letters written home from Calcutta to his friend, Mr. Ellis, he says, "my mornings from 5-9 are quite my own, I still give them to ancient literature. I have read Aristophanes twice through since Christmas and have also read Herodotus and Thucidides again. I have got into the habit of reading a Greek play every Sunday." The list of the Greek and Latin works he went through every month was most formidable. It is said that on his voyage to India he got through the Iliad and Odyssey, Virgil, Horace, Cæsar's Commentaries, Dante, Petrarch, Ariosto, Tasso, Don Quixote, Gibbon's Rome andMill's India besides many others.

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Dr. J. J. Findlay, Professor of Padagogy in the College of Preceptors, England, writing in the September number of the London *Journal of Education* arrives at the following definition of Education.

"The adult portion of the community organised in the forms of the

family, the state, (local and national,) the Church and various miscellaneous associations desires to promote the well-being of the rising generation. This it seeks to do by the employment of certain deliberate modes of influence as in addition to the inevitable influences of circumstances and environment that operate upon all human life. These specific influences are called 'Education', and those who exercise them are called teachers."

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Here is the latest story of the Turkish Custom house. A richly-bound copy of 'Herodotus' was found in the trunk of a Greek traveller "Who is the author of this book?" said an official. "Herodotus." "What subjects does he deal with?" "Kings and international conflicts." "Does he allude to Eastern affairs?" "He treats of nothing else." Whereupon the book was incontinently confiscated.—*The School Guardian.*

* * *

Sir William Hunter, writing in *The Times*, says that the splendid successes of Mr. Chatterjee and Prince Ranjeet Singh "give emphasis to the change from the old pursuits of the high castes, and the old standards of excellence to the new pursuits and standards of excellence which Englishmen carry with them wherever they go. In support of this change, he cites the distinguished success of Dr. Bose, who, as a scientific investigator, has excited the admiration of Lord Kelvin. He calls attention to the distinction of another sort gained by Lieutenant S. C. Biswas, a Bengalee—who distinguished himself very honorably during the late insurrection in Brazil. "These successes" concludes Sir William, "mean that Indians seem likely to win high places for themselves in the new world as their fathers held a high place in the world of abstract thought."

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A class for the teaching of Sanskrit has just been opened at Auckland, New Zealand.

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The London School of Elocution (Directress, Miss Emily McLaughlin) opened for the season at the Dramatic Studio, 16, Edgware-road, Hyde Park, W., on the 5th inst. Miss McLaughlin gave a short address, explaining the art of being heard, understood, and controlling one's audience. To do so requires great self-control, to acquire which is a life-long study and the highest point of art which can be reached is to conceal art and to appear natural. This axiom is not appreciated by those who would fain rush on to the stage and take the world by storm, believing in their wild enthusiasm that the footlights bestow confidence and, like the frame, finish the picture. She also gave an interesting synopsis of the derivation and development of the English language, in

all its phases, showing that in its cosmopolite character it could express the feelings of all nations, appropriating certain words and yet preserving a strict individuality. This instructive lecture was listened to with attention by the assembled pupils and their friends, after which a few recitations were given, as a sort of rehearsal, by those who are to make their first appearance at the Bijou Theatre, 3, Bedford-street, Strand, W. C., on the 7th inst.

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Miss Ida Farnell, formerly scholar at Lady Margaret Hall, Oxford, has translated from the mediæval Provençal the 'Lives of the Troubadours' into English. The lives are invaluable for the history given by Miss Farnell of Provençal literature.

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Miss Lydia Bradley is going to erect a Polytechnic institution in the city of Peoria, Illinois, which will cost at least a million dollars. Miss Bradley has already presented the city with a park of 145 acres, as well as with a church, a home for aged women, and a hospital.

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Miss Catherine MacDonald gave some thrilling personal experiences of her stay at Aintab during the massacre, after a lecture delivered by Mr. Richmond, at Hampton Hill. Miss MacDonald was governess in the family of Dr. Shepherd, of the American Mission at Aintab, and she was one of those who narrowly escaped a terrible death.

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Miss Jane E. Harrison, LL.D., is giving a course of six weekly afternoon lectures on "The Mythology of the Parthenon Marbles" in the Lecture Hall, Steine House, Brighton. The first was given on Friday, Oct. 2, and consisted of an outline of the great subject admirably given, and promising much interest for the course.

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Miss Ada Pritchard has compiled a memoir of the life and work of her father, the Rev. Dr. Charles Pritchard, late Savilian Professor at Oxford. Among Dr. Pritchard's pupils were Dean Bradley, Sir William Herschell, and Sir George Grove. Just before his death, it will be rememered, Dr. Pritchard received the Royal medal from the Royal Society for original work in astronomy.

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The scholarship tenable for three years, annually given by the Royal Holloway College, Egham, on the results of the Oxford and Cambridge Higher Certificate Examination, has been awarded to Miss Edith Muriel Shaw, of the South Hampstead High School for Girls. —The Queen.

INDIAN NEWS.

BENGAL.

The Bengal Veterinary School which was started in January 1894 at Belgachia near Dum Dum is doing excellent work, and it is under the consideration of the Government of India to raise it to the status of a College, and extend the course of study from two to three years. There are now 48 students in the Institution and of the 12 students who have completed their course and qualified, one has been appointed an overseer at the Institution, the services of two have been retained by the Calcutta and Howra Municipalities respectively, one has been engaged by a local Veterinary Committee at Sitamarhi, four more have been selected for appointments at Patna, Dacca, Port Blair and Nagpur, and two have commenced private practice in Calcutta.

It has also been decided to attach to the Institution a hostel capable of accommodating 38 students. This house is now in course of construction, at an estimated cost of Rs. 39,000 which sum has been provided by Government.

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The *Indian Spectator* commenting on the publication of the last part of the English translation of the Mahabarata by Mrs. Sundari Bala Roy, the widow of the late Protap Chunder Roy, who was engaged at it at the time of his death, says, she has done her wifely duty more loyally than if she had immolated herself on her husband's funeral pile.

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At the recent examinations for the Indian Civil Service, 62 places were open to competition and 4 Indian names appear in the list of successful candidates :—A.C. Chatterjee, A.K. Cama, P.E. Cammiade, and S.C. Malik. Mr. Chatterjee not only heads the list but is far above the second successful candidate. Mr. Cama's name appears also among the successful candidates for the Home Civil Service and the Eastern Cadetships.

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The Syndicate of the Calcutta University have decided to discontinue the practice of appointing Head Examiners at the First-in-Arts Examination.

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The Muhammadan Orphanage at Calcutta receives a munificient monthly grant of Rs. 300 from His Highness the Nizam of Haiderabad.

The Right Hon'ble the Secretary of State for India in council has sanctioned a special pension of Rs. 6000 per annum to Mahamahopadhyay Pandit Maheshchandra Nyayratna C.I.E, late Principal of the Calcutta Sanskrit College.

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A LARGE two-storied house has been purchased in Calcutta, at a cost of Rs. 80,000 for the accommodation of the newly constituted College of Physicians and Surgeons of Bengal and a hospital.

BOMBAY.

We are in the midst of the autumn vacation and educational news is scarce. The Director being away and Mr. E. Giles, M.A., acting for him for three months, nothing very much is being done in the way of making new appointments.

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We understand that, contrary to expectation, the Hon'ble Mr. T. B. Kirkham, Educational Inspector of the Central Division, has applied for an extension for yet another year from April 1897. Mr. Kirkham will be fifty-eight next spring, so that he might have retired nearly three years ago. In acknowledgment of his good services, Government have hitherto granted him extension year after year. Though the policy of retaining the services of a tried and still efficient officer is in itself a good one, its long continuance is apt to dishearten those, possibly equally useful, servants whose promotion is thus continually blocked.

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The new scheme for the organization of the Educational Department will in a measure remove this obstacle. "The Grades" will in time be abolished and an educational officer's pay will depend almost entirely on his length of service.

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Mr. J. G. Covernton, Professor of English at Elphinstone College, has long been a member of the Bombay Light House Volunteers. Mr. K. D. Prior, Principal of the Elphinstone High School, has also joined the force; while Mr. T. N. Fraser, Professor of English at Deccan College, Poona, has lately been gazetted a captain in the local rifle volunteers.

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We must congratulate Mr. A. K. Cama on his success in the various Civil Service Examinations in England. Mr. A. K. Cama is a student of

Elphinstone College, Bombay, where he studied Mathematics under Principal Hathornthwaite, the Professor of Mathematics. After obtaining a first class in the final examination for the B. A. degree, he was elected to a fellowship at his College. In 1892, he proceeded to St. John's College, Cambridge, being assisted by the "Tata Fund." He soon obtained a foundation scholarship at his new college, and in 1895 he graduated as 21st Wrangler in the Mathematical Tripos. Mr. Cama has now come out 13th in the list of successful candidates for the Indian Civil Service, and is, at the same time, 12th on the list of selected candidates for the Home (or English) Civil Service and 6th on the list of those chosen for Eastern cadetships—commonly known as the Ceylon Civil.

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This is the first time that a Parsee or for the matter of that any native of India has passed for the Home Civil Service and it seems to open up new vistas of possibilities for educated young India.

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The last number of the Deccan College Quarterly, in discussing the examination reforms of the Hon'ble. Mr. Justice Ranade, asks whether it is the object of the Bombay University to produce merely graduates or good graduates. The Editor considers that the latter was the original object, whereas Mr. Ranade's proposals seem to show that the former is now chiefly to be aimed at.

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Among the many cries raised by the student correspondents to our dailies, one is that there should be only one examination paper set for each day. This would of course have the effect of extending the examination period over many more days and thus keep mofussil students longer in Bombay.

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There is a good deal to be said on both sides. To judge from the letters however, the cause of the grievance is not that two papers a day involve too great a strain on the students, but that the latter are unable to successfully cram up for more than one paper the night before. If such is really the case, the present system of two papers a day is certainly preferable.

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We note that Philosophy and History have further been divorced. This year, two examiners have been appointed for History and two for Philosophy for the B.A. and other grouped examinations, instead of as before three or four for the combined subjects.

* * *

The long delayed Educational Conference at last opened at Poona on September 30th and concluded its sittings on October 2nd. It was

presided over by the Hon'ble Mr. Kirkham, and was on the whole a fairly successful, interesting and instructive gathering. Such conferences were strongly recommended by the Educational Commission, but for some reason or other, no steps had hitherto been taken to assemble any. After repeated interpellations in the Legislative Council, the Government were at last prevailed on to call one together.

* * *

The presence of H. E. the Governor, of the new acting Director of Public Instruction, and of several members of the Legislative Council added dignity to the asssembly. But the success of the various meetings was very largely due to the sympathy, encouragement and tact of the President, the Hon'ble Mr. T. B. Kirkham. We hope to see the experiment repeated in future years.

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In the cricket competition of the Bombay High Schools Athletic Association, the New High School was for the fourth year in succession victorious, easily defeating the Cathedral High School in the final.

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The following pertinent remarks were made by Mr. D. E. Padhye, M. A., on the importance of Training Colleges for teachers in High and Middle schools at the last Educational Conference held at Poona, and we commend a careful reading of the same to all those interested in the science of pedagogy.

1. " Teaching is no longer an art, but it has become a Science. A critical study of the methods followed by the great masters of Greece and Rome, and of the further development of these methods in the 18th century is full of practical instruction to all educationists. Free education, compulsory education, moral and religious education—such practical questions, the subjects of living controversy in the civilized world,—are generally studied by the average Indian teacher. But with the new turn given to the educational systems of old by the development of the science of Psychology, the average teacher is not acquainted. Since Education primarily deals with the mind, a teacher cannot be a good teacher unless he knows the rudiments of Psychology. The teacher must be well trained in the art proper of teaching and school management. So a previous training in the following direction is necessary. (1) The history of education ; (2) the present state of education in the civilised world, with knowledge of the different ideals set and methods pursued in the different countries : (3) Psychology as bearing on education ; (4) the practical art of teaching and school-management.

2. The want of a previous training of this kind makes it compulsory to have raw teachers. This system of trained teachers in our

Anglo-Vernacular and High schools is responsible for the absence of uniform principles and methods in school teaching and management. School hours only bring the teacher and the pupil together. The teacher trains his pupils for the examination or show and never tries to draw out the faculties.

3. In their famous letter of December 1887, the Government of India declared to all local governments "that in the truest interests of education the cost of providing thoroughly good training schools and colleges for teachers of English as well as Vernacular schools should be regarded as a first charge on the educational grant." The resolution of 17th August 1889 repeated the same orders. Madras and Central Provinces alone have done something in this direction.

4. In other parts of India, the attempt never goes beyond "Normal schools for training teachers for the Vernacular schools."

5. Our High school teachers and College Professors are not perfect models. Besides, the students are not expected to pay attention to the methods of teaching followed by the teachers. So the present High schools and Colleges cannot be the Training Colleges. Lecture-system is followed in Colleges and the Socratic method is recommended for schools. Besides, as the number of graduates increases, the educational department gets the inferior quality that fails to get an entrance elsewhere.

6. Training classes should be attached to all the important High schools in the Presidency. I believe this is simply a way of making a beginning."

* * *

Mr. Dharamsy Morarji of Bombay has given a donation which produces annually Rs. 300 to the Poona Native Institution and the Maharashtra College in appreciation of the good work the Institution has been doing. Out of this sum, Rs. 200 are to be given for a moral preceptorship, Rs. 40 for a prize and Rs. 60 for monthly scholarships.

* * *

We extract the following from the very interesting speech delivered by Rao Bahadur Kashinath Balwant Pendse, M.A., on the occasion of the prize distribution to the successful students in the drill classes of the New English School at Poona. "I cannot pass without notice one peculiar feature of your school, a feature which plays, and plays appropriately an important part, indeed the chief part, in to-day's programme—I mean the study of drill. We Hindoos are a very conservative nation, and as such we would not take kindly to innovations, unless we are thoroughly convinced of their beneficial effects. Drill has, I believe, formed part of your course for about ten years; and I have no doubt

you have by this time succeeded in impressing the students and their parents with the manifold advantages which result from its practice. In Europe and America, drill is regularly taught in schools and I hope that the example set by the New English School in this respect will induce other institutions to adopt it in this country.

Education in the early days of the department was restricted to the training of the intellect; and the need for physical development side by side was not then recognized as an essential part of its programme. The sad experience, however, of the evils of a one-sided system brought into prominence the importance of attending to regular bodify exercise and the maxim *mens sana in corpore sano* is now universally accepted as an ordinary truism. Attention has been drawn to the value of including moral instruction in the curriculum of a school; and at times the question has engaged the serious attention of educationists whether it would be possible and desirable to include religious instruction as well. In the present conditions of Indian society, it does not seem possible for a public institution to take complete charge of the moral and religious education of boys: a good deal of this and more particularly religious instruction must be left to the care of parents and guardians. The mental and the physical are the only two departments which a school or a college in India can ordinarily undertake.

Although the moral and religious part of the education of boys more especially the latter cannot be brought under the control of masters, I would not have you suppose that the masters are relieved of all responsibility in this respect. They can still do a great deal by precept and example."

* * *

Miss. Cornelia Sorabji has commenced a course of lectures to Zenana ladies in connection with the Bombay Branch of the National Indian Association.

* * *

Mrs. Nusserwanji. M. Petit has made a liberal donation of Rs. 10,000 to provide premises for some of the Primary Schools of the Municipality of Bandore.

* * *

In consequence of the destruction by fire of the temporary shed erected near the Wode house Bridge, Bombay for the holding of the University Examinations, the Previous, the Intermediate and the First Agriculture Examinations will be postponed probably for a week or two. The shed was intended to hold about 2000 candidates.

* * *

The Director of Public Instruction sanctions the following book for College and School Libraries. The book can be had at Messrs. Rele &

Co., Bombay, and the price is Rs. 3. "Writings and Speeches of the late Hon'ble Rao Saheb Vishvanath Narayan Mandlik, C. S. I., edited by Mr. Narayan Vishvanath Mandlik, B.A."

MADRAS.

The Director of Public Instruction has ordered that, as far as the Vernacular languages are concerned, the expression "the letters of the alphabet," under the Infant standard in chapter V. of the Madras Educational Rules shall include only the ordinary vowels and consonants and the combinations of each consonant with the first vowel. The Sanskrit letters shall not be included.

* * *

The Coimbatore Teachers' Association which was started a few months ago is doing useful work. During the months of September and October, three meetings were held, at each of which a paper was read. Mr. Mark Hunter read a paper on "The Teaching of History in Secondary Schools," Mr. T. S. Vencataramana Aiyar, B.A., L.T., read a paper on "Examinations and their Aims" and Mr. C. K. Venkatagiri Sastri, an old student of the Teachers' college, read a paper on "The Teaching of Geography." A general discussion followed each paper which kept the members (whose number was unfortunately very small at the last meeting) fully alive to the importance of the papers read.

* * *

We have been requested by a High School Mathematical teacher to publish the following, and we think that there is much truth in the complaint.

The Decline of Mathematics in High Schools and Colleges.—The late Professor Ranganadham said thus in 1889. "As a Mathematical examiner of many years' standing, I venture to submit that there has been of late a marked decline in the standard of mathematical attainments of candidates for the F.A. Examination. The evil became apparent five or six years ago, and it has been gradually growing in intensity." Now I think that the root of this evil lies in our High Schools and the High School Examinations. Algebra and Geometry are the two subjects that are carried on from the High Schools to the colleges. The question papers set at the Matriculation Examination in these subjects, especially in Algebra have been made too short and of too small a relative value, so that both students as well as teachers have come to neglect them in High Schools. The poor High School teacher who wishes to make all his students pass in the Matriculation Examination indulges in the drud-

gery of working by rule instead of rising to the free application of the most general principles. But the remedy for all this seems to me to be very simple. I think it lies in the hands of the Examiners and Fellows of the Madras University. If the fellows try their best and make the Algebra and Geometry papers of three hours duration instead of two hours and if the examiners ask more difficult and intelligent questions, then and then only will the evil be rooted out entirely. A comparison of the Matriculation Algebra paper of 1876 with that of 1886 or 1894 will corroborate the above statement. This struck me very impressively during my experience as a mathematical master, and I hereby bring it to the notice of the Examiners and Fellows of the Madras University.

* * *

It is under the consideration of the Negapatam Taluq Board to raise the Local Fund High School, Tiruválúr (Tanjore District) to a Second-Grade College.

* * *

The Government Technical Examinations in Drawing, Printing, Binding and other Industrial subjects begin on the 16th instant, and will last for a month. The examination will be held in the following centres: Vízagapatam, Rajahmundry, Cocanada, Trivandrum, Calicut, Tellicherry, Palghaut, Bellary, Coimbatore, Salem, Kumbakonam, Tanjore, Trichinopoly, Karur, Madura and Nazareth.

* * *

Applications for admission into the Training departments of the Presidency Training School for Mistresses, Madras, should be sent to the Superintendent before the end of November 1896.

* * *

It is ordered by Government that all communications addressed to the Chief Secretary should be docketed at the back on the full page without being folded as hitherto, and sent in large covers specially made for the purpose.

* * *

Thirty-five graduates have applied from the Teachers' College, Saidapet, for the ensuing L. T. Degree Examination.

* * *

The report of the Breek's Memorial High School, Ootacamund, a copy of which was sent to us by the Honorary Secretary, contains a brief record of the progress the school has made during the period from November 1895 to August 1896, under its new Head-Master, Mr. L. C. Hodgson, B.A., (Christ's College, Cambridge). It would be advisable in future to draw up the report for the academical year, as the public will then be in a position to judge better of its efficiency especially in

regard to the strength and the results of examinations. The report shows that the school has increased considerably in strength. In November 1895, there were 34 pupils on the rolls, of whom only 27 were Europeans and Eurasians. In August 1896, there were 76 pupils, of whom as many as 55 were Europeans and Eurasians. The only other classes of pupils attending the school were Muhammadans, the Hindus who in years gone by flocked to the school in large numbers having altogether disappeared; the Committee is not very keen to admit Hindu boys, as the school was intended, according to the Trust Deed, only for Europeans and Eurasians.

Moreover, the second language taught in the school is Latin, which is practically of no use to a Hindu pupil. We would strongly urge on the Committee that the school be fully equipped by European or Eurasian teachers, so that European parents may send their sons to be educated there in larger numbers than they do at present. Few schools in Southern India have the advantage of such a climate as that of Ootacamund. The results of the various examinations for which the pupils were sent up last year were far from satisfactory, and the management of the school during the past few years was so very bad that no one appeared for the Matriculation Examination from the school last year, and the Committee even thought of closing the High School department altogether. The school, however, promises a bright future under its present Head-Master who has already introduced several reforms in its working. Each master is made responsible for the teaching of that subject in all the classes which he is best qualified to teach. The teaching of Latin which was not hitherto began by the pupil till he was 14, is now taught from the 3rd class upwards. The school has been provided with the necessary chemical and physical apparatus, the library has been enlarged, and lastly the buildings of the school have been thoroughly repaired.

* * *

At a Congregation which was held at Cambridge on the 15th October, Mr. S. Sathianadhan, Professor of Logic and Moral Philosophy, Presidency College, Madras, was admitted to the degree of LL.M.

* * *

M.R.Ry. C. V. Sundrum Sastriar, B.A., B.L., the son of that distinguished Linguist, Mr. Ranganatha Sastriar, has presented to the Connemara Free Library nearly a thousand volumes of books in Englsih, Latin, Greek, German and Arabic.

* * *

The wife of the late Tahsildar of Tinnevelly, Mr. Sonachellam Pillai, has made an endowment of Rs. 1,000 to the Tinnevelly Hindu College

with a view to institute a scholarship in the name of her husband. The scholarship is to be derived from the interest of the funded capital and is to be awarded only to non-Brahman Hindu students.

* * *

The Secretary of the Bible Tract Society is circulating a list of cheap but interesting and valuable publications in English and the Vernaculars available for sale at its depôt in Madras.

* * *

The Dewan of the Mysore State thus summarised the progress of education during the past year in the report he read before the Mysore representative assembly :—

"Public Instruction continued to make satisfactory progress. The number of public schools rose by 111 and the number of pupils by 3,123. The total number under instruction in all the schools, both public and private, was 112,014, of whom 98,449 were boys and 13,565 were girls. The percentage of boys and girls under instruction to the male and female population of the school-going age was 26·97 and 3·75 respecfively. The attendance at the 40 schools for the education of the depressed classes was 1,483. Among the more important measures introduced during the year, may be mentioned the system of giving grants-in-aid to village indigenous schools of which as many as 57 have already availed themselves of the benefit of the measure. The total expenditure on Public Instruction was Rs. 8,46,390, of which Rs. 4,47,702 was paid from the General Revenues, while the balance was contributed as follows :—Rs. 1,93,920 by Local Funds; Rs. 30,719 by Municipal Funds; Rs. 92,570 by School Fees; and Rs. 81,479 by other sources."

* * *

The recently published report of the Syndicate of the Madras University shows that, while the percentage of passes in Sanskrit is 72·41, the percentages in the chief vernaculars of the Presidency—Tamil, Telugu and Canarese are respectively 86·6, 86·9 and 82·8. This is rather discouraging seeing that the tendency among students is for giving up Sanskrit and taking up one of the vernaculars as their second language in the University Examinations.

* * *

The new Educational rules require that students attending Upper Secondary departments should not use caps but should wear turbans—the Hindu national head-dress. This is a very desirable reform, although not in favour with a portion of the student population who have taken to caps. The turban has a long history to tell both in India and in other parts of Asia.

Janaki Ammal, the wife of the late Hon'ble V. Ramiengar, C.I.E. has in her will endowed a sum of Rs. 10,000 to the Madras University for a scholarship of Rs. 20 per mensem tenable for 2 years to be called after her husband's name and to be given to a Hindu studying for the M.A. Degree Examination in Sanskrit or science.

* * *

A Library of General Literature was presented to the Public of Chingleput by a member of the Chingleput bar, Mr. T. N. Krishnamachariar. The Library was formally opened on the 14th October by Mr. Russell, the District Judge.

* *

We are pleased to learn that among the state monuments determined upon in memory of the late Maharajah of Mysore is an industrial school at Mysore with an endowment of scholarships for poor students.

* * *

Schoolmasters in Mysore have been entrusted with the sale of quinine and other medicinal powders by the authorities.

* * *

The Editor will feel thankful for information as to where Todd's 'Indexrerum' can be had.

* * *

For twenty-five vacancies for first grade collegiate scholarships in the Teachers' College, Saidapet, in January next, as many as ninety-six graduates have applied, most of whom have taken up Physical Science or Mathematics as their optional subject for the B.A. Examination.

* * *

Dr. E. Thurston, Superintendent of the Government Museum, Madras, proceeds home on a year's furlough in January next.

* * *

The undermentioned gentlemen are appointed members of the Text-Book Committee in the room of the Reverends T. E. Davies, M.A., and J. W. Foley, M.A., and A. Chatterton, Esq., B.Sc., who have resigned :— Reverends W. H. Findlay, M.A, Karur; Rev. J. M. Russell, M.A., Madras Christian College; Rev. J. Lazarus, B.A., Danish Mission.

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The Commissioner for Government Examinations has notified the following addition to Article 4 of the Special Test Notification :—

Note 6.—"Until 1st January 1902, all the Special Test Examinations, except the Revenue Test, Higher Grade, and the Criminal Judicial Tests, Higher and Lower Grades, shall be open to persons who, on the 1st January 1897, held appointments carrying a salary of Rs. 15 *per mensem* or upwards in the 'superior service' of Government and who had, on that date, passed either the General Test Examination or the Middle School Examination in the 1st class."

The Seventh Anniversary of the Madras Women Teachers' Association was held at the Museum buildings on the 7th November 1896 under the Presidency of H. E. Lady Havelock, when Miss Bernard, the Honorary Secretary, read her Annual Report. The report shows that the Association has been doing steady and useful work since its foundation.

* * *

In grateful remembrance of the name of the late Mr. B. Krishna Aiyar, of Cuddalore, the founder of the Cuddalore Native College after the abolition of the Government College at that station, the citizens of the town have subscribed for a life-size portrait of him and it has been executed by Raja Rai Varma. The portrait was unveiled amidst great rejoicings by Mr. H. A. Sim, the District Judge.

* * *

At the meeting of the Senate of the Madras University held on the 6th November 1896, the following important changes were adopted.

1. The rule compelling candidates who fail in the B.A. Degree examination in one or all of its branches to attend College for a further period of one year has been cancelled.

2. The M.L., the L.T., the F.E., and the B.E. Degree examinations will, beginning from January 1897, be held on the second Monday in January.

3. The following subjects have been added to Branch III. (Natural Science). (*a*) Botany, (*b*) Physiology, (*c*) Zoology, (*d*) Geology, any one of which may be taken at the option of the candidate for the M. A. Degree examination.

4. The candidates for the M.L. Degree examination will have a separate Board of Examiners from that of the B.L. Degree examination to examine them.

* * *

The Hon'ble Dr. Miller who went home to Scotland in March last returned to Madras on the 9th instant. A large number of his friends —mostly members of the staff and the students of the Madras Christian College—welcomed him at the Madras Central Station. A public reception was also organised in his honour in which the whole college took part.

* * *

Prof. S. Satthianadhan read a very instructive and interesting paper before the National Indian Association, at the Imperial Institute, on the 19th October 1896, with Dr. Fitch in the chair, the subject being "What has English Education done for India."

* * *

At the request of the Secretary, we publish the following proceedings of the Madras Teachers' Guild.

Educational Conference Committee.

This Committee met on Thursday, October 29th, at 5-30 P.M., at the Presidency College. Mr. J. H. Stone, the president, took the chair.

It was agreed that the Conference be held on Monday and Tuesday, December 21st and 22nd. As it is intended for all educationists of the Presidency, notices announcing details will, in due time, be sent out to mofussil schools and Inspectors. Two meetings will be held daily from 10-30 to 1-30, and 2-30 to 5-30, at the first three meetings of which, questions on educational topics will be taken up and discussed. The fourth meeting will be a sort of social gathering, and will be held at some attractive place, for instance, at the Agri-horticultural Gardens, if it could be arranged for and if weather permits. The other meetings will be held in the New Theatre of the Museum, Pantheon Road. The following subjects for discussion were mentioned at the meeting. The Committee will be glad to receive from any members suggestions of other subjects with the member's name and address.

(1) School and College Societies and Clubs.
(2) Organisation of Local Fund Schools.
(3) Relations of Teachers and Managers.
(4) Provident Funds and Retiring Pensions for Teachers.
(5) Discipline.
(6) Upright Handwriting.
(7) Compulsory Drawing.
(8) Science Teaching in Schools.

The above subjects are not decided upon. From them and others that may be suggested, a list will be drawn up later on. The Committee will meet again for a second time within a week to have the details settled.

Monthly Meeting of the Guild.

An ordinary meeting of the Guild was held at 5-30 P.M., on Friday the 6th November, in the Anderson Hall. There was a good attendance, nearly eighty of the members being present. On account of the Senate meeting the same evening, Mr. J. H. Stone and some other members had to be away. In the absence of the president, Mr. R. S. Lepper was voted to the chair.

The proceedings commenced with the reading of the minutes of the previous meeting, which were adopted. Eleven names were then read out as applicants for membership; and in the absence of any objection, they were all admitted as members. The Rev. F. W. Kellett then proposed the recommendations of the Conference Committee, and intimated to the members that the Committee will be glad to receive suggestions from

them. The proposal was seconded, and there being no suggestion, the proposition was put to vote and carried.

Mr. P. Lakshminarasu, B.A., was then called upon to deliver the lecture on "Some Recent Electrical Discoveries." The lecture, especially the experiments he made, were very interesting. Adopting the historical order in the development of Electrical Science, he first made mention of Galvani's and Volta's discoveries; and then explaining how Oersted found out the relation that exists between magnetism and electric currents, he proved by experiments the principle and the use of Galvanometers. He spoke of Faraday's discovery about Electro-magnetic Induction, and explained how this forms the basis of the modern dynamo machines, induction coils, alternate current transformers and other appliances. His experiments about the phenomena of discharge, transformers and alternate-current motors, vacuum tubes and Röntgen rays, and his explanations regarding the oscillations and waves of electricity and the electro-magnetic theory of Light were all very delightful and instructive. The meeting was, indeed, very successful. The chairman on behalf of the members thanked the lecturer for his able address and interesting experiments. A vote of thanks to the chairman, the lecturer, and Mr. Ragagopal Iyer for his kind assistance, proposed by Dr. C. B. Rama Row, and seconded by Mr. S. P. D'Sylva, terminated the proceedings of the meeting.

The Teachers' Registry.

The following desire appointments:—

(1) a B.A. and L.T. (Government Service.)
(2) a Science B.A.
(3) an untrained certificated F.A. (B.A., Language Branch.)
(4) an untrained F.A.
(5) an untrained B.A.
(6) a Science B.A. and L.T.
(7) a certificated Telugu Physics B.A (preparing for L.T.)

Notice of the following vacancies has been sent to the Registry;—

(1) a Christian L.T. (Madras.)
(2) a Female trained Matriculate (or Higher Grade for Women) —Christian and Telugu-speaking preferred.
(3) a trained Telugu-speaking Christian F.A.
(4) a trained Telugu-speaking Christian Matriculate.
(5) a trained Telugu-speaking Christian Matriculate.

Applications for Teachers' Registry should be sent to the

REV. F. W. KELLETT,
Royapettah.

Applications for membership should be sent to

M.R.Ry S. VASUDEVA CHARIAR, B.A.,L.T.
Wesleyan College, Royapettah.

MATHEMATICS.

Solutions of Questions.

178. (*S. Padmanabha Aiyar, B.A.*) Show that the oblique trajectory of a system of confocal ellipses is given by $x=c\cos\phi\cosh n(\lambda+\phi)$, and $y=c\sin\phi\sinh n(\lambda+\phi)$, where $2c$ is the distance between the foci, and $\tan^{-1}n$ is the angle at which the curves intersect.

(1.) *Solution by the Proposer.*

Let one of the confocals be given by $x = a\cos\phi$, $y = b\sin\phi$, where $a^2-b^2=c^2$. If X, Y, refer to the trajectory at its intersection with the given curve,

$$\frac{dY}{dX}=\frac{dy/dx-n}{1+ndy/dx}=\frac{dy-ndx}{dx+ndy}.$$

We may therefore put

$$dX/d\phi=dx/d\phi+ndy/d\phi,\text{ and }dY/d\phi=dy/d\phi-ndx/d\phi.$$

Now, $dx/d\phi=-a\sin\phi$, $dy/d\phi=b\cos\phi$; also, since at the intersection, $X=x$, $Y=y$, we have X $a=X\sec\phi$, and $b=Y\operatorname{cosec}\phi$.

Thus $dX/d\phi=-a\sin\phi+nb\cos\phi=-a\sin\phi+n\cos\phi\sqrt{a^2-c^2}$,

$$=-X\tan\phi+n\cos\phi\sqrt{(X^2\sec^2\phi-c^2)}.$$

To integrate this, assume $X\sec\phi=cv$.

Substituting and reducing, we have $dv/d\phi=n\sqrt{v^2-1}$, from which $v=\cosh n(\lambda+\phi)$, λ being an arbitrary constant.

$$\therefore\ X=c\cos\phi\cosh n(\lambda+\phi).$$

Similarly Y may be found. It is obvious that the same arbitrary constant should enter into the values of both X and Y.

Another solution is given in Boole's *Differential Equations*, where the result is exhibited in a different form.

(2.) *Solution by R. Ramachendra Row, B.A.*

Any point on a confocal ellipse is given by $x=a\cos\theta$, $y=b\sin\theta$, where θ is an arbitrary variable parameter, and $a^2-b^2=c^2$.

If p represents the dy/dx of the system of ellipses, we obtain by differentiation $ap\sin\theta+b\cos\theta=0$.

If q represents the dy/dx of the required system of trajectories,

$$n=\frac{p-q}{1+pq}$$

From the above equations it is required to eliminate, a, b, θ and p.

Assume $a = c\cosh\Psi$ and $b=c\sinh\Psi$, where Ψ is an arbitrary variable.

Using X, Y to represent the coordinates of a point on the required system, $X=c\cosh\Psi\cos\theta$, $Y=c\sinh\Psi\sin\theta$.

and $p\cosh\Psi\sin\theta+\sinh\Psi\cos\theta=0$.

Eliminating p, $$q=\frac{n\cosh\Psi\sin\theta+\sinh\Psi\cos\theta}{n\sinh\Psi\cos\theta-\cosh\Psi\sin\theta}.$$

The above form suggests the transformation $\Psi=n(\theta+\lambda)$, where λ is an arbitrary VARIABLE parameter, so that

$$X=c\cosh n(\theta+\lambda)\cos\theta \text{ and } Y=c\sinh n(\theta+\lambda)\sin\theta.$$

$$\text{Thus } q=\frac{d\{\sinh n(\theta+\lambda)\sin\theta\}-n\cosh n\,\overline{\theta+\lambda}\sin\theta\cdot d\lambda}{d\{\cosh n(\theta+\lambda)\cos\theta\}-n\sinh\overline{\theta+\lambda}\cos\theta.\,d\lambda}=\frac{dY-M(d\lambda)}{dX-N(d\lambda)}.$$

But $q=\dfrac{dY}{dX}$; $\therefore\ d\lambda=0$, *i.e.*, λ which we assumed to be an arbitrary *variable*, is an arbitrary *constant*.

Note.—From the above it follows confocal conics cut at right angles

The angle of intersection is right if $n=\infty$.

Replace $c\cosh n\,\overline{\theta+\lambda}$, $c\sinh n\,\overline{\theta+\lambda}$ by A, B connected however by the equation $A^2-B^2=c^2$; the orthogonal trajectory becomes

$$Y=A\cos\theta,\ Y=B\sin\theta, \text{ where } A^2-B^2=c^2;$$

i.e., the system we started from is reproduced. A system of confocal conics is its own orthogonal trajectory.

179. (*H. J. Woodal, A.R.C.S.*) Resolve into quadratic factors the expression; $x^6-6x^5+25x^4-58x^3+102x^2-96x+72.$

(1.) *Solution by T. Sundara Row, B.A.*

The expression does not contain a factor of the form x^2+a, as the portion of it consisting of the terms involving odd powers of x, *viz.*, $6x^5+58x^3+96x$, has no such factor.

If the second term of the expression be suppressed, the transformed expression may contain such factor.

Putting $x=y+1$, it becomes

$$y^6+10y^4+2y^3+33y^2+10y+40 \qquad (1).$$

Now $2y^3+10y=2y\,(y^2+5)$, and y^2+5 is a factor of (1).

Dividing (1) by y^2+5, we get y^4+5y^2+2y+8 for the product of the remaining two factors of (1), which must be of the form

$$(y^2+py+q_1)(y^2-py+q_2),$$

$$=y^4+(q_1+q_2-p^2)y^2+(pq_2-pq_1)y+q_1q_2.$$

Equating coefficients, we get $p^6+10p^4-7p^2-4=0$, a cubic equation in p^2, which has one real positive root equal to 1.

$$\therefore\quad p=1,\ q_1=2,\ q_2=4.$$

Thus the factors of (1) are $(y^2+5)\,(y^2+y+2)\,(y^2-y+4)$,

or $(x^2-2x+6)\,(x^2-x+2)\,(x^2-3x+6)$.

(2.) *Solution by M. T. Naraniengar, M.A.*

Let $(x^2+\lambda x+\mu)$ be a factor ; and $i\equiv\sqrt{-1}$;

then $(1+\lambda+\mu)$ is a factor of $f(1)$ *i.e.*, of 40;

also $(-1+\lambda i+\mu)$ . . . . . . $f(i)$ *i.e.*, of $-6-44i$.

Now $-6-44i = -2\,(4+i)\,(2+5i) = 2\,(1-4i)\,(5-2i)$

$$=(1+i)\,(1-i)\,(1-4i)\,(5-2i.)$$

[$\because$ the modulus of $3+22i=\sqrt{493}=\sqrt{17}\cdot\sqrt{29}.=\sqrt{4^2+1^2}\sqrt{5^2+2^2}.$]

Thus, λ and μ being integers, $\mu-i$ and λ are obtained by taking suitable factors of $(1+i)$ $(1-i)$ $(1-4i)$ $(5-2i)$ and these are found on trial to be $(5-2i)$ $(1-i)$ and $(1+i)$ $(1-4i)$ or $(5-3i)$.

Hence $\mu=6,\ 6,\ 2$ and $\lambda=-2,-3,-1$

and the factors are (x^2-2x+6), (x^2-3x+6) and (x^2-x+2).

N.B.—To limit the number of trials we have the condition $1+\lambda+\mu$ should divide 40. Thus the factors $(2+5i)$ and $(4+i)$ are rejected, because then $(1+\lambda+\mu)$ assumes the values 9 and 7, which are not factors of 40.

180. (*C. N. Cama.*) An ellipse is rotated through a right angle in its own plane about its centre which is fixed : prove that the locus of the point of intersection of a tangent to the ellipse in its original position with the same tangent in its new position is the curve

$$(x^2+y^2)(x^2+y^2-a^2-b^2) = 2(a^2-b^2)xy.$$

(1.) *Solution by S. Venkataramanan.*

Let $(h,\,k)$ be the coordinates of a point on the ellipse in its original position. Then the equations of the tangents in the two positions are

$$\frac{xh}{a^2}+\frac{yk}{b^2}=1 \quad \text{and} \quad \frac{yh}{a^2}-\frac{xk}{b^2}=1;$$

$$\therefore\ (y^2+x^2)\,\frac{h}{a^2}=x+y \quad \text{and} \quad (y^2+x^2)\frac{k}{b^2}=y-x.$$

Eliminate h and k between these two equations and $\dfrac{h^2}{a^2}+\dfrac{k^2}{b^2}=1$.

(2.) *Solution by R. Ramachendra Row, B.A.*

Let MT be any tangent and M′ T its new position. Draw CM, CM′ perpendicular to MT, M′T. Then MCM′ is a right angle.

If the coordinates of M (foot of perpendicular on tangent from centre) be $(p\cos\theta,\ p\sin\theta)$, those of M′ are $(-p\sin\theta,\ p\cos\theta)$.

The coordinates of T are twice the coordinates of the mid-point of MM′,

$\therefore$ $x=p\,(\cos\theta-\sin\theta)$, $y=p\,(\cos\theta+\sin\theta)$, and $p^2=a^2\cos^2\theta+b^2\sin^2\theta$.

Eliminating p and θ, $(x^2+y^2)(x^2+y^2-a^2-b^2)=2(a^2-b^2)xy$.

186. (*K. K. Subramania Aiyar, B.A.*) Find the sum to n terms :—

$$1+2x+6x^2+20x^3+66x^4+212x^5+\ldots\ldots$$

Solution by A. Radhakrishna Aiyar, B.A., and others.

The general term is easily seen to be $x^n(1^n-2^n+3^n)$, and therefore the sum of n term of the series is

$$=\frac{1-x^n}{1-x}-\frac{1-2^nx^n}{1-2x}+\frac{1-3^nx^n}{1-3x}.$$

Questions for Solution.

200. (*K. J. Sanjana.*) " From the resolution of x^n+1 into factors, deduce the identity $\tan^{-1}\dfrac{\sin n\theta}{1+\cos n\theta}\equiv\tan^{-1}\dfrac{\sin 2\theta\left(1-2\cos\frac{\pi}{n}\right)}{1+\cos 2\theta\left(1-2\cos\frac{\pi}{n}\right)}$

$$+\tan^{-1}\frac{\sin 2\theta\left(1-2\cos\frac{2\pi}{n}\right)}{1+\cos 2\theta\left(1-2\cos\frac{2\pi}{n}\right)}+\ldots\ldots\ldots\ldots\text{''}$$

Show that the identity does not hold good and find the correct form of the right hand side.

201. (*A. K. S.*) Prove that, if $a+b+c=abc$,

$$\Sigma\left(\frac{3a-a^3}{1-3a^2}\right)=\pi\left(\frac{3a-a^3}{1-3a^2}\right).$$

202. (*S. Venkataramanan.*) Find the envelope of the *latera-recta* of parabolas inscribed in the same triangle.

203. (*M. S. R.*) Sum the following series to infinity and find the lue of each when $x=0$:—

(1) $\dfrac{1}{1^2+x^2}+\dfrac{1}{2^2+x^2}+\dfrac{1}{3^2+x^2}+\ldots\ldots$

(2) $\dfrac{1}{1^2+x^2}+\dfrac{1}{3^2+x^2}+\dfrac{1}{5^2+x^2}+\ldots\ldots$

204. (*V. R. Thyagaraja Aiyar, M.A.*) ABC is a triangle : lines AA,′BB,′ CC′ are drawn, making equal angles (each$=\alpha$) with AB, BC, CA respectively. Prove that

(*a*) the triangle A′B′C′ formed by these straight lines is similar to ABC ;

(*b*) $\dfrac{\text{the area of the triangle A}'\text{B}'\text{C}'}{\text{area of the triangle ABC}}=(\cos\alpha-\sin\alpha\cot\omega)^2$;

whese ω is the Brocard angle of the triangle ABC ;

(*c*) the envelope of the circumcircle of A′B′C′ for different values of α is a quartic curve ;

(*d*) if the triangle ABC be equilateral, then the triangle A′B′C′ has the same centre for all values of α.

205. (*R. Ramachendra Row, B.A.*) From a point on a circle three chords are drawn and on them as diameters circles are described. Prove that their other points of intersection lie on a straight line.

206. (*J. B. Ramamurti.*) Describe a circle which shall bisect the circumference of a given circle and touch two other given circles.

207. (*S. Padmanabha Aiyar, B.A.*) Two particles start simultaneously from A, B, two of the angular points of a square ABCD, in the directions AB, BC and describe the periphery with constant velocities V, v respectively, (V being $>v$), until one overtakes the other. Prove that the minimum distances between the particles occur at equal intervals of time, and that, if $V : v :: m+1 : m$, where m is an integer, the sum of all these minimum distances is $\frac{m(m+1)}{2\sqrt{\{m^2+(m+1)^2\}}}$ AB.

NOTICE TO CORRESPONDENTS.

[*Mathematical contributors are requested to communicate their address to the Editor. They are also requested* (1) *to write each Question and each Solution on a separate paper (otherwise when used for printing, the Editor has the trouble of entirely re-writing such articles),* (2) *to make their solutions as short as possible and* (3) *to write on one side only and not on both sides of the paper.*—EDITOR.]

NOTIFICATIONS.

BOMBAY.

List of appointments in the Educational Department for the month of October 1896.

6th October 1896.—Mr. D. N. Majmudar is confirmed as 3rd Clerk to the Deputy Educational Inspector, Surat Sub-Division.

17th October 1896.—Mr. K. P. Gulrajani is appointed 2nd Clerk to the Deputy Educational Inspector, Hyderabad; Mr. R. C. Hathiramani is appointed 5th Clerk in the office of the Educational Inspector, Sind; Mr. H. R. Hathiramani is appointed Clerk in the Training College, Hyderabad.

26th October 1896.—Mr. Jethanand Utamchand, Head Master Vernacular School Talti, is appointed Head Master, Practising School, attached to the Hyderabad Training College.

28th October 1896.—The following appointments are made in the Elphinstone High School. Mr. P. N. Joshi, to be 6th Assistant; Mr. G. V. Dhurandhar, to be 7th Assistant; Mr. A. M. Athwankar, to be 8th Assistant; Mr. V. R. Patki, to be 9th Assistant; Mr. S. G. Bhanap, to be 10th Assistant; Mr. G. M. Kher, to be 11th Assistant; Mr. A. N. Khare, to be 12th Assistant; Mr. J. D. Esperance, to be 13th Assistant; Mr. V. G. Ghanekar, to be 14th Assistant; Mr. V. S. Nerurkar, to be 15th Assistant; Mr. D. R. Bhende, to be 16th Assistant; Mr. S. S. Devdhar, to be 17th Assistant; Mr. D. M. Gupte, B.A., to be 18th Assistant.